SPEECH ACCOMMODATION IN CO-OPERATIVE AND COMPETITIVE CONVERSATIONS

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CONTENTS

1 COMMUNICATION, SPEECH SHIFTS, AND ACCOMMODATION

1.0 INTRODUCTION 1
1.1 COMMUNICATION: SOME TERMINOLOGICAL ISSUES 1
1.2 SPEECH SHIFTS 4
1.3 THE ACCOMMODATION MODEL 6
1.4 GENERAL AIM AND STRUCTURE OF THIS STUDY 6

2 OUTLINE AND EVALUATION OF ACCOMMODATION THEORY

2.0 INTRODUCTION 9
2.1 OUTLINE OF ACCOMMODATION THEORY 9
2.2 EVALUATION OF ACCOMMODATION THEORY 15
2.3 GENERAL HYPOTHESES 21

3 METHODS: PILOT EXPERIMENT AND EXPERIMENTAL DESIGN

3.0 INTRODUCTION 24
3.1 PILOT EXPERIMENT 25
3.1.1 Method 25
3.1.2 Results and discussion 29
3.1.3 Summary of conclusions 32
3.2 ANTECEDENTS FOR CO-OPERATIVE AND COMPETITIVE CONVERSATIONS 33
3.2.1 Experimental gaming and interdependence 33
3.2.2 The Bank Robbers game 36
3.3 METHOD IN THE ACCOMMODATION EXPERIMENT 40
3.3.1 Procedure in the pre-test 40
3.3.2 Methods 42
3.4 THE ANALYSIS OF DYADIC DATA: DEFINITION OF SPEECH STRATEGIES 44
3.5 THE COMMUNICATIVE SITUATION AND THE SPEECH MATERIAL 49

4 SOME ASPECTS OF LEXICALLY BASED ACCOMMODATION

4.0 INTRODUCTION 51
4.1 SELECTION OF LEXICAL VARIABLES 53
4.2 RATINGS OF THE LEXICALLY BASED VARIABLES 56
4.3 RESULTS 57
4.4 DISCUSSION AND CONCLUSIONS 63

5 ACCOMMODATION AND DISCOURSE MANAGEMENT STRATEGIES

5.0 INTRODUCTION 65
5.1 SELECTION OF DISCOURSE VARIABLES 67
5.2 RESULTS 71
5.3 DISCUSSION AND CONCLUSIONS 74

6 ACCOMMODATION IN SEGMENTAL VARIABLES

6.0 INTRODUCTION 77
6.1 SELECTION OF SEGMENTAL VARIABLES 78
6.2 TRANSCRIPTION OF SEGMENTAL VARIABLES 81
6.3 RESULTS 86
6.4 DISCUSSION AND CONCLUSIONS 90

7 ACCOMMODATION IN PROSODIC AND PARALINGUISTIC VARIABLES

7.0 INTRODUCTION 93
7.1 SELECTION OF VARIABLES 94
7.2 RESULTS 97
7.3 DISCUSSION AND CONCLUSIONS 101

8 ACCOMMODATION AND SPEECH STEREOTYPES

8.0 INTRODUCTION 103
8.1 SELECTION OF DEPENDENT VARIABLES 104
8.2 DATA REDUCTION: PRINCIPAL COMPONENTS ANALYSIS 105
8.3 EFFECTS OF CONVERSATION TYPE, GROUP AND STATUS ON RATING FACTORS 108
8.4 ACCOMMODATION AND PERCEIVED SPEECH CHARACTERISTICS 109
8.5 DISCUSSION AND CONCLUSIONS 113

9 GENERAL DISCUSSION AND CONCLUSIONS

9.0 INTRODUCTION 115
9.1 LIMITATIONS OF THE EXPERIMENTAL DESIGN 115
9.2 GENERAL CONCLUSIONS 118
9.3 SUGGESTIONS FOR FUTURE RESEARCH 121

REFERENCES 123

APPENDIX 131

SAMENVATTING 133

CURRICULUM VITAE 137

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1 COMMUNICATION, SPEECH SHIFTS AND ACCOMMODATION

1.0 INTRODUCTION

The population in Western societies has expanded rapidly over the past century. Over the same period of time people have become increasingly mobile. These developments have induced dramatic changes in the structure and the quality of the environment and our social relationships. Throughout human history, people have lived in small communities. In modern society the people we know, our acquaintances, friends and relatives, are scattered both geographically and socially, and many people we meet are strangers. With these strangers we engage in short conversations in shops and offices, gas stations, bars, and hospitals. Social interaction is a bewildering task under these circumstances.

In a certain sense, the ability to create a positive impression quickly and easily has only recently emerged as an important social skill. The complexity of verbal and nonverbal systems of communication is astonishing, and we must control these complexities if the interaction is to be successful (Forgas 1985). Conversations which can arise between two previously unacquainted persons are the general subject of this study. The central focus is on the subtle shifts in a person's speech style which can be employed -more or less consciously- for communicating social messages. The formal subject is the social aspect of language and communication, and this is studied from social psychological and sociolinguistic perspectives.

The research questions in this study are formulated within accommodation theory (Giles, Mulac, Bradac, and Johnson 1987). Accommodation theory is a social psychological theory, in which the research areas of social perception, impression formation, and speech style variation are brought into relation. Social perception and impression formation are central topics of social psychology. The way in which people adapt their speech style to the interlocutor, the topic, and the situation a conversation takes place in, is a central topic in sociolinguistics. Several hypotheses which have been derived from this theory are investigated in an experiment.

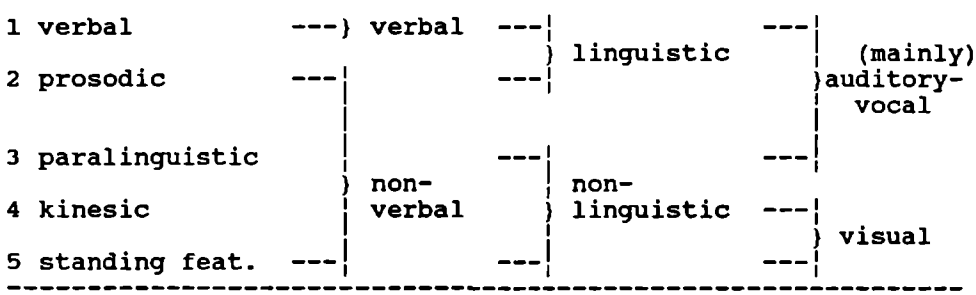
1.1 COMMUNICATION: SOME TERMINOLOGICAL ISSUES

Living organisms are constantly in touch with each other, and with their environment. The ability to perceive and to respond to signals is generally considered essential for all organisms in order to survive in a strange and changing environment. With regard to the exchange of signals between human beings, free conversations can be taken as the canonical setting. In this setting, people

communicate for a certain purpose, and the conversation takes place in a socially defined context in which they assume interdependent social roles. They "follow conventional rules, strategems and tactics for making decisions and obtaining various goals" (Higgins 1981: 346).

The concept 'communication' has been defined and interpreted in numerous ways. A practical and very general working definition is the following. Communication "occurs when one organism (the transmitter) encodes information into a signal which passes to another organism (the receiver) which decodes the signal and is capable of responding appropriately" (Ellis and Beattie 1986: 3). Cells communicate by exchanging chemical substances such as hormones and neurotransmitters (Janssens 1989). The range of messages is restricted, and so is the range of responses. In communication between humans things are far more complex. A message may be communicated in more than one way. A number of different 'channels' of communication may be employed: for example facial expressions, gestures, eye contact, body posture, clothing, speech and nonverbal sounds, to list some of them. The responses to these messages can be equally diverse.

Figure 1.1 Systems of human communication and groupings of these systems (after Ellis and Beattie 1986)



Ellis and Beattie distinguish five primary systems of communication: the verbal, prosodic, paralinguistic, kinesic (movements of face, head, body, posture and gestures), and standing features of a conversation (interpersonal distance, orientation and appearance). These systems can be (and have been) grouped in various ways, as set out in Figure 1.1. The main focus of this study is on the verbal, prosodic and paralinguistic systems, which can be grouped under the heading of the 'auditory-vocal channel'. Findings regarding the visual channel will only occasionally be referred to. Throughout this study, the prosodic and the paralinguistic systems are referred to as the 'nonverbal channel' in order to distinguish them from the verbal system.

The verbal system is made up of phonemes, morphemes, words, clauses and sentences (Ellis and Beattie 1986). The prosodic and paralinguistic channel are defined according to their standard linguistic meanings. The prosodic system can be defined as "vocal effects constituted by variations along the parameters of pitch, loudness, duration and silence" (Crystal 1969: 128).

The paralinguistic system consists of variations in tone of voice which seem to be less systematic than the prosodic features. It refers to voice quality features and vocal behaviour which do not have linguistic or referential meaning (Crystal 1969). Examples include the controlled use of breathy or creaky voice, whining, yawning, and the use of articulatory features such as lip-rounding or nasalisation "to produce a tone of voice signalling attitude, social role, or some other language-specific meaning" (Crystal 1980: 257).

Human communication is highly complex, even if restricted to the auditory-vocal channel. This is beautifully expressed by Barthes (1970), who shows that hearing a person speak in our mother tongue is more than simply receiving referential messages. The speech sounds, sometimes involuntary, trigger myriad images: we infer what the speaker is like, what his/her social status is, what he/she values, how he/she perceives us.

Nonverbal messages play an important role in social life, communicating values, attitudes, liking and other personal reactions (Forgas 1985). Sophisticated language users use this fact and manipulate speech and sounds in such a way that the hearer is forced to make alternative inferences. Nonverbal messages are transmitted and received under less conscious control and monitoring than language is (Forgas 1985). Ellis and Beattie's definition of communication does not require that the transmitter or the receiver are consciously aware of the passage of a communicative signal. In their definition, contrary to the more restrictive definitions of Lyons (1977) or Levelt (1989) for example, nonverbal messages are regarded as communicative.

The theoretical distinction between 'communicative' and 'informative' signals (e.g. Lyons 1977) is not followed here. The distinction is not of immediate relevance to the purposes of this study. Some definitions of communication such as Levelt (1989) involve the purpose of intention recognition by the receiver. If a speaker says something in order to impress his interlocutor, these definitions impose a restriction; it is essential that the interlocutor does not consciously recognize this intention. The utterance should merely cause the interlocutor to be impressed. Given that the purpose of intention recognition is lacking, there is no communicative intention in Levelt's definition. In Ellis and Beattie's definition of communication, which is adopted in this study, these more remote intentions are simply regarded as communicative.

As indicated above, the shifts in a person's speech that are employed for communicating social messages are the primary topic of this study. A well-known example is the imitation of the speech of the powerful, of those having status, in order to adopt some of their social esteem. Kloeke (1927) considered this type of social processes the principal source of language change. In his view, every individual strives to move upward in the social hierarchy. One of the symptoms of this aim is the borrowing of the speech habits of a social class which stands higher in the hierarchy. As Bloomfield (1933: 476) put it: "In any group, some persons receive more imitation than others, they are the leaders in power and prestige. (...) The humble person is not imitated; the lord or leader is a model to most of those who hear him".

However, it is not only the powerful who are imitated. In numerous experiments it has been demonstrated that imitation or adaptation of speech characteristics occurs frequently in conversations between persons of equal status as well. People apparently modify not only their accent, lexicon and grammar but also several prosodic features. The importance of this phenomenon for the quality of communication is generally recognized (e.g. Leiser and Brooks 1988). In order to illustrate this phenomenon, some examples are presented below. For more comprehensive reviews see Capella (1981), and Giles et al. (1987).

Verbal channel: accent, lexicon, and grammar

Giles (1973) found that speakers in a conversation shifted their accent. This finding has been confirmed in numerous replications. Beebe (1981), for instance, analyzed interviews with bilingual Chinese-Thai children. Two interviewers were involved in her experiment, one Thai and one Chinese. The Chinese interviewer looked characteristically Chinese, but spoke Thai without any Chinese accent. Interviewed by this Chinese interviewer the subjects produced more Chinese-coloured vowels as compared to the Thai interviewer. Coupland (1984; 1988) analyzed the speech of a Cardiff shop assistant speaking to her customers. The speech of the shop assistant became more or less accented in keeping with the accent of her customers.

Anderson and Garrod (1987) instructed subjects to play a game in which they were required to co-operate in moving pieces through a maze. Players in a dyad turned out to agree on a set of local semantic conventions. Similar results were obtained by Clark and Wilkes-Gibbs (1986) in an experiment in which subjects were instructed to sort out a series of tangram figures.

Levelt and Kelter (1982) investigated the syntactic correspondence of the indirect object in a question-answer context. The indirect object in Dutch can take a prepositional or a nominal form. An example is the question: "**(Aan) wie laat Paul zijn viool zien?**". In the answer to this question the preposition is optional: "**(Aan) Toos**". Levelt and Kelter found that subjects systematically preferred to respond to a

question in the same grammatical structure as the one the question was framed in. Collier (1983) did a similar experiment with similar results. In a second experiment Collier (1983) showed that children at the age of seven and adults do not differ in the degree to which they show this matching preference.

Nonverbal channel

Black (1949) did an experiment in which subjects listened to a stimulus tape containing words and simple questions. The stimuli were recorded and played back with variable intensity. The subjects were instructed to repeat the words, and to answer the questions. Black (1949) observed a general tendency to respond with a variable intensity level in keeping with the level of intensity of the stimuli. Using the same experimental procedure, Lightfoot and Black demonstrated similar phenomena with regard to speech rate (cited in Webb 1972). It was found that subjects showed the tendency to adapt to the intensity of the stimulus, even when they were instructed explicitly to respond at a single (fixed) level of intensity (Black 1949; Siegel and Pick 1974).

Webb (1972) used an 'automated standardized interview method' in order to investigate processes of synchronization between an interviewer's and an interviewee's speech. A number of standard questions were recorded in four conditions: having either a high or a low speech rate, and long or short pauses. Subjects heard the stimulus tape, and answered the questions. The results suggest that the interviewee's speech rate was significantly influenced by the rate of the pre-recorded questions. No significant synchronization effect was found for pause length.

Feldstein (1972) analyzed a number of dyadic interactions on vocalisation time, pauses, switching pauses and floor time. The results indicate that although the average durations of sound and silences may be characteristic of a speaker, these characteristics at the same time vary as a function of the interaction with an interlocutor. The results suggest that the temporal patterning of an individual's speech is not only influenced by the pattern of another speaker, but also by changes in the psychological context of a dialogue.

Natale (1975) found that the lowering or raising of an interviewer's intensity produced a corresponding change in the intensity level of the interviewee. In a follow-up experiment Natale recorded an unstructured conversation between two subjects who were instructed to talk freely. Each dyad met three times, once a week, each session lasting one hour. The means and standard deviations of the dyads' absolute differences of mean vocal intensity converged increasingly over time.

Working on speech interfaces for human-computer interaction, Leiser, de Alberdi and Carr (1987) observed prosodic accommodation in voice recognition template training. Subjects were requested to repeat a number of words in order to extract templates to facilitate recognition. In this training procedure, they tended to mimic the intonation of the model. Problems arise here as a result of the users mimicking the intonation of the model in the training stage, and then reverting to their own natural intonation during system use. Leiser and Brooks (1988: 5) argue that

phenomena of accommodation offer a potential means of implicitly constraining user inputs in the setting of human-computer interaction "in order to improve the quality of communication just as participants in human-human dialogue do".

1.3 THE ACCOMMODATION MODEL

Several theories have been put forward to explain the phenomena which were illustrated in the previous section (Street and Giles 1982). In linguistics, Giles' **accommodation model** has been the most influential of these alternative theories. Accommodation theory, which is at the heart of this research, is concerned with the study of -more or less- consciously transmitted verbal and vocal signals. It combines two research traditions into one framework: those of speaker evaluation and of speech variation (Giles and Powesland 1975).

In short, the accommodation model is a social psychological theory in which a speaker's perception of the interlocutor and his conversational needs are related to his speech style. More specifically, the theory deals with social cognitive processes mediating a speaker's perception of the environment and his communicative behaviour. The central notion of accommodation theory is that during interaction individuals are motivated to accommodate their speech styles for goals like, for instance, evoking a listener's social approval, attaining communicative efficiency, or maintaining positive social identities.

Central speech strategies that support these aims are speech convergence, speech divergence, and non-accommodation. Convergence is defined as "a linguistic strategy whereby individuals adapt to each other's speech by means of a wide range of linguistic features" (Giles et al. 1987: 14). Divergence "refers to the way in which speakers accentuate vocal differences between themselves and others" (Giles et al. 1987: 14). Non-accommodation (the maintenance of one's speech characteristics) is regarded as functionally equivalent to divergence.

By concentrating on a sender's motivations, his conversational needs, and on general constraints operating in social settings, accommodation theory offers an explanation for convergent and divergent speech shifts in social interaction. Although these shifts have communicative meanings of different kinds, both transmitters and receivers may be largely unaware of the passage of these signals. Still, according to Ellis and Beattie (1986) these signals can be considered communicative.

1.4 GENERAL AIM AND STRUCTURE OF THIS STUDY

Accommodation theory has been developed in order to demonstrate the potential of social psychological theories and concepts for explaining certain types of speech

shifts (Giles and Powesland 1975). The psychological component of the theory is well established. However, there is a need for specifying the acoustic, nonverbal, sociolinguistic and discourse features that make up convergent and divergent strategies in different social settings (Giles et al. 1987). The general aim of this study is to investigate verbal and nonverbal features, and to test a set of predictions derived from accommodation theory in relation to these features. In order to investigate speech strategies in different social settings, two conversation types are compared: co-operative and competitive.

In the next chapter, accommodation theory is outlined from a historical perspective and the theory is evaluated in general terms. From this evaluation it will become obvious that however sophisticated its social psychological component may be, many issues still remain unclear. The evaluation results in the formulation of seven hypotheses in section 2.3, which are recurrent themes in chapters 4, 5, 6, and 7. For the purpose of this introduction, these hypotheses can be summarized as follows:

1) In co-operative conversations speakers will converge to the speech of their interlocutor.

2) In competitive conversations speakers will diverge from and/or non-accommodate to the speech of their interlocutor.

These hypotheses are tested in a situation in which the interpersonal dimension is high, and the intergroup dimension is low (Giles and Hewstone 1982). Conversations are recorded in an experimental laboratory setting in which no situational norms are operative that would constrain speech behaviour. In chapter 3, a pilot experiment is described which aimed at exploring the requirements and the problems this type of experiment brings about.

In the final experiments 30 dyadic conversations of 20 minutes each were recorded on tape. In 15 of the 30 conversations the participants were motivated to co-operate. In the other 15 they were encouraged to be competitive. In all dyads, one participant was attributed a high status, and the other a low status. The two members of a dyad were previously unacquainted. In order to eliminate the influence of the visual channel of communication, precautions were taken to assure that the participants did not see each other either before or during the experiment. This experiment, the speech material, and the statistical analysis of the design are discussed in chapter 3.

In the recorded conversations, processes of communication accommodation are analyzed at four levels: the lexical (chapter 4), the discourse (chapter 5), the segmental (chapter 6) and the prosodic and paralinguistic level (chapter 7). These chapters all have a similar structure. In a short introduction the central hypotheses and research questions are specified, which in general address a comparison of accommodation processes in two conversation types, and between high and low status speakers. Next, the selection of speech variables is commented on, variables

are analyzed statistically, and the results are discussed. The analysis of the speech material relies on methods derived from sociolinguistics and phonetics.

A central aspect of accommodation theory is that people are expected to accommodate to their stereotypes regarding their interlocutor's speech. This issue will be taken up in chapter 8. In order to assess the stereotypes of the subjects, they were asked to respond to a number of questions at the end of the experiment. Questions addressed the participants' perception of their interlocutor, the experimental situation, and their interlocutor's speech. The central questions again concern a comparison of responses to these questions in the two conversation types, and between high and low status participants. Finally, in chapter 9 the results regarding the four speech levels and the response questionnaire are integrated, and general conclusions with regard to the accommodation theory are formulated.

2 OUTLINE AND EVALUATION OF ACCOMMODATION THEORY

2.0 INTRODUCTION

Accommodation theory deals with two large, and to a certain extent separable areas of research: those of intergroup or intercultural communication, and of interpersonal communication. Accommodation theory has been expanded and modified in a large number of successive contributions. In a few papers, which can be taken as updated versions of the theory, these new elaborations are summarized. As to the terminology: in line with Giles et al. (1987), the versions of the theory which originated before 1987 are referred to as Speech Accommodation Theory (SAT) and more recent versions are referred to as Communication Accommodation Theory (CAT). The neutral 'accommodation theory' is used to refer to both.

In the first section of this chapter (2.1) accommodation theory is outlined from a historical point of view. This outline uses the updated versions of the theory as a guideline. Many individual papers will not be dealt with in detail, however valuable their contribution may be. In addition, a second restriction is applied. Intergroup communication is outside the scope of this study, and so aspects of the theory that deal exclusively with an intergroup context are not included in this summary. As a negative consequence of this approach, the outline is rudimentary in many ways, and may not do full justice to the general sophistication and richness of accommodation theory. At the same time however, the restrictions applied will result in a deeper understanding of the factors that do receive attention in the outline.

In section 2.2 the value of the accommodation model in interpersonal settings is evaluated. Street and Giles (1982) compared the theory to alternative explanations for the speech phenomena illustrated in the previous chapter. Their conclusion was that accommodation theory is superior to those other explanatory models as it explains more findings. In section 2.2 it is argued that this conclusion is not unconditionally true. Finally, in section 2.3 seven research hypotheses are formulated which are derived from accommodation theory. The hypotheses are based on the evaluative remarks in section 2.2, and on the directions for future research suggested in Giles et al. (1987).

2.1 OUTLINE OF ACCOMMODATION THEORY

It is a basic sociolinguistic proposition that people adapt their speech style to the interlocutor they address, to the situation, and to the context they find themselves in. Ervin-Tripp (1964; 1969) and Hymes (1967; 1972) have developed taxonomies of situational determinants that influence speech production. Hymes' taxonomy

'SPEAKING', for instance, lists **(S)etting, (P)articipants, (E)nds, (A)rt characteristics, (K)ey, (I)nstrumentalities, (N)orms, and (G)enre** (Hymes 1967). These situational characteristics can be denoted in short as the 'topic' of, 'participants' in, and 'setting' of a conversation (Giles and Powesland 1975). This intra-speaker variation is central to verbal communication. As Hymes (1972 p.38) put it: "No normal person, and no normal community, is limited to a single way of speaking, to an unchanging monotony that would preclude indication of respect, insolence, mock seriousness, humour, role distance, and intimacy by switching from one mode of speech to another".

According to Labov (1966; 1972), every speaker can select an appropriate style from a spectrum of available styles. These styles differ in the amount of attention paid to speech production. Styles range from casual style produced with minimal attention, to reading minimal pairs with maximal attention. This explanation of speech styles was criticized by Giles (1973) and his associates (e.g. Giles, Taylor and Bourhis 1973; Giles and Powesland 1975). Their criticism focussed first of all on the general deterministic nature of mainstream sociolinguistic accounts of speech variation, and on the neglect of psychological variables such as speakers' attitudes or their perception of the communicative situation (e.g. Thakerar, Giles and Cheshire 1982). Giles et al. (1973), therefore, expressed the need to develop a dynamic sociolinguistic theory which accounts for at least some types of speech modifications.

SAT was put forward to explain the observation that speakers sometimes modify their speech characteristics in situations that are not governed by social norms which dictate a specific speech behaviour (Giles and Powesland 1975). The theory deals with social cognitive processes mediating a speaker's perception of the environment and his communicative behaviour (Giles et al. 1987). The theory is rooted in the concepts of similarity attraction (Byrne 1969), causal attribution theory (Kelly 1967), exchange theory (Homans 1961), and the theory of intergroup relations (Tajfel and Turner 1979).

1975: The first statement

Giles (1973) observed that speakers in a conversation changed their accents in a way that made these accents become more similar to each other: the speakers 'converged' their accents. In numerous experiments reviewed in Giles and Powesland (1975), it was demonstrated that a speaker's vocal characteristics influence the way he is perceived by an audience. The authors suggested that speakers deliberately modify their speech in order to create a specific valued impression. Thus, two areas of research are linked: those of speech style variation and speaker evaluation.

In this version of the theory, it was suggested that there was a straightforward relation between a speaker's motivation and attitude toward the listener and his speech style. The 1975 model of a strategy that results in speech convergence is presented below. It is assumed that there is a dyad consisting of speakers A and B, and that A wishes to gain B's approval. In that case A:

"(1) Samples B's speech and
(i) draws inferences as to the personality characteristics of B (or at least the characteristics which B wishes to project as being his)
(ii) assumes that B values and approves of such characteristics
(iii) assumes that B will approve of him (A) to the extent that he (A) displays similar characteristics
(2) Chooses from his speech-repertoire patterns of speech which project characteristics of which B is assumed to approve"
(Giles and Powesland 1975: 158).

As a result of this decision process, A "produces speech similar - or at least more similar than his normal speech would be - to the speech of B. There is therefore speech convergence. If B at the same time goes through a similar process, there is mutual convergence. One effect of the convergence of speech patterns is that it allows the sender to be perceived as more similar to the receiver than would have been the case had he not accommodated his style of speaking in this manner" (Giles and Powesland 1975: 158).

At the same time it was argued that a negative attitude towards the receiver is reflected in a divergent speech modification. In a divergent strategy, a speaker increases the differences he perceives between his speech and the speech of the receiver. The same attitude can be reflected in non-accommodation: a strategy in which a speaker does not change his speech patterns. Evidence for divergence and non-accommodation was collected (a few years later) in intergroup or intercultural settings by Bourhis and Giles (1977), and Bourhis, Giles, Leyens and Tajfel (1979).

In the context of intergroup communication, speech convergence and divergence were interpreted as strategies of conformity or identification. Convergence was interpreted as a strategy of identification with the interlocutor, whereas divergence was seen as a strategy of identification with some external reference group. This external reference group was supposed to have characteristics (in terms of values and attitudes) that are different from the interlocutor's.

It soon turned out that a receiver does not evaluate every act of convergence and divergence in the same way. In line with predictions derived from causal attribution theory, Simard, Taylor and Giles (1976) found that the evaluation of speech accommodation is dependent on the motives a receiver attributes for doing so.

1982: The first update

Thakerar, Giles and Cheshire (1982) can be taken as the first update of SAT. The paper starts with an outline of the theory, and gives a summary of its contents in six 'propositions'. Next, a series of experiments is discussed, which lead to a modification of the propositions in order to bring the theory into agreement with the experimental findings. The propositions reflect two important new insights.

Firstly, it was found that there is an optimal level for accommodation processes, and secondly, it was admitted that people differ in their need to gain approval and, therefore, in their motivations to accommodate their speech as well.

Optimal levels of accommodation were investigated by Giles and Smith (1979). Groups of listeners rated a subject's attractiveness from conversations that were recorded on tape. The speaker's speech rate, pronunciation, and the content of their utterances were systematically varied. It was found that convergence in content and speech rate, resulted in the highest attractiveness scores. Adding convergence in pronunciation resulted in lower attractiveness scores. From this evidence, Giles and Smith conclude that full accommodation is not the preferable strategy in order to make the best impression, and hence, that there is an 'optimal' level for accommodation processes.

People differ in their need to gain approval. The greater a speaker's need to gain another's approval, the greater the magnitude of convergence will be (up to an optimal level!). An important factor that may influence this need is the social status of the interlocutor. Differences in social status are often reflected in overt (verbal and nonverbal) behaviour. These have been studied in numerous experiments, and are reported in many informal observations (e.g. Brown and Gilman 1960; Mehrabian 1969; Exline 1971; Condon 1984).

However, most empirical work in accommodation theory had left encounters involving participants of unequal status unexamined. As the participants in many everyday conversations are of unequal status, there was a need for studying accommodation in unequal-status dyads. This was what the experiments in Thakerar et al. (1982) aimed at. In these experiments, an interpersonal situation was created in which the participants were expected to aim at co-operation.

The results demonstrated that although the subjects were convinced they converged to their interlocutors, their speech rates and accents objectively diverged. In order to explain this result, the authors suggest that the interactants had subjectively converged to their partners in the direction of the way they expected them to speak. A distinction was introduced between objective and subjective accommodation. Further, it was hypothesized that the high-status and low-status participants might have modified their speech in order to fulfil other cognitive and affective functions.

These experiments resulted in several changes to the propositions which include:

- a shift from the focus on objective speech characteristics to speech characteristics as perceived by the interlocutor;
- the introduction of the distinction between subjective and objective speech modifications;
- an extension of the number of motivations underlying accommodative changes (cognitive organisation).

1987: New extensions

Giles, Mulac, Bradac, and Johnson (1987) present an update of SAT which incorporates many more research findings, but does not differ fundamentally from the 1982 version. The 1982 propositions are reformulated and extended further. Propositions deal with: 1) the 'antecedents' for convergence and divergence, 2) the magnitude of the accommodative act, and 3) its evaluation by the recipients. The main extensions, which are discussed below, concern:

- the cognitively mediating role of stereotypes;
- situational constraints on accommodation strategies;
- the evaluation of accommodative shifts;
- the introduction of cognitive motives for divergent speech strategies;
- a new emphasis on relational identity and self-presentation principles.

Thakerar et al. (1982) had introduced a distinction between subjective and objective accommodation. The importance of this distinction was confirmed in a number of studies (e.g. Bell 1982; Beebe 1981; Platt and Weber 1984). In the 1987 update this distinction was replaced by the notion that speech convergence is often cognitively mediated by the stereotypes a speaker has of the speech of socially categorized receivers. If the stereotype matches the interlocutor's actual speech, convergent strategies to the interlocutor's stereotyped speech will result in speech convergence, otherwise the result will be linguistic divergence.

In its earlier versions, SAT had claimed that a convergent speech strategy generally leads to a positive evaluation by the interlocutor. From new experiments, however, it was concluded that at least in some contexts it is better to adhere to socially accepted norms than to converge to an interlocutor (Genesee and Bourhis 1982). In an experiment, a group of listeners rated a speaker in an interview situation. If the speaker adhered to a standard accented pronunciation, he was rated more favourably than if he converged to his interlocutor's accent (Ball, Giles, Byrne and Berechree 1984).

In 1982, the function of (as well as the motive for) divergent speech strategies was limited to an identification with a certain group different from the interlocutor. Giles et al. (1987) argue that divergence can fulfil a number of additional functions. Firstly, divergence may be used as a strategy to indicate that a speaker is not a member of a host community or not familiar with the current situation. Secondly, divergence may be used as a strategy to regulate the other person's speech behaviour. An interlocutor who speaks extremely quickly can be slowed down by reducing one's own speech rate. Thirdly, in long-term relationships (e.g. wife-husband) divergence can be used as a strategy for negative affect de-escalation. Finally, there may be situations in which social norms dictate speech differences. In many interactions involving people holding a differential status (doctor-patient, for example) dissimilarities between the interactants' speech may be expected. In such interactions, interlocutors adapt to their fixed roles, even if these roles prescribe

speech differences. A speech strategy in which interlocutors adapt to their fixed (complementary) roles, and in which these roles dictate speech differences, is called 'speech complementarity'.

In the 1987 update a new emphasis is put on principles of self-presentation and social comparison, which had previously been incorporated in the accommodation framework more implicitly. It is argued that in some cases, what we take to be interpersonal convergence may in fact be the result of two people trying to promote their self-presentation using the same (non)-verbal means.

1988: a new framework

Coupland, Coupland, Giles, and Henwood (1988) report on their work in an intergenerational context, and present an extended model of sociolinguistic processes in accommodation theory. In this new framework, speech convergence and divergence, together with maintenance and complementarity, are referred to as approximation strategies. Approximation strategies are introduced as just one subtype of what is termed 'attuning strategies'. Other attuning strategies are: 'interpretability strategies', 'discourse management strategies', and 'interpersonal control strategies'. In addition, the concept of 'addressee focus' is introduced. In previous versions of SAT, a speaker was supposed to focus on the interlocutor's 'productive performance', or simply: his speech. SAT had been limited to approximation strategies. In the new model, three new foci are added: the interlocutor's interpretative competence, conversational needs, and role-relations.

Depending on his addressee focus, a speaker selects an appropriate attuning strategy. These attuning strategies relate to several levels of speech production. Approximation strategies primarily function on the phonetic level, interpretability strategies function mainly on the level of syntactic or lexical complexity and explicitness. Discourse management strategies function at the topic, face, and turn-management level. Interpersonal control strategies concern interruptions and forms of address. It is, however, important to note that none of the attuning strategies functions at only one speech level. A modification of one's articulation rate, for instance, can well be part of an interpretability strategy.

In this new model a number of accommodative results are distinguished. A speaker's behaviour can be labelled by the recipient as accommodative, over-accommodative, under-accommodative or contra-accommodative. As was noted above, social stereotypes have taken a prominent place in CAT. Over-accommodation, under-accommodation, and contra-accommodation refer to frequent, inappropriate, misconceived talk to those elderly persons for whom the stereotypes do not coincide with their actual abilities (Coupland et al. 1988).

The importance of this new extension is a result of the fact that the central focus of CAT has shifted from the approximation strategies to the discourse management strategies. To quote Coupland et al. (1988 p.27): "We see the discourse management component not only as the broadest but as the most central sociolinguistic category

through which interpersonal accommodation is realized. It highlights the fact that a psychologically convergent orientation to one's interlocutor is most naturally, we claim, indexed by and implemented through talk designed to intermesh positively at a variety of discoursal levels with a conversational partner".

In this new model the definition of convergence is modified. "Accommodative talk is not necessarily talk wherein participants share any obvious speech characteristic (...). Rather, it is talk wherein actors achieve a high degree of fit between their typically different, but potentially attunable, behaviours" (Coupland et al. 1988: 28). The definitions of divergence and non-accommodation remain unaltered.

Return to sociolinguistics

In summary, accommodation theory emerged in the early seventies as a result of a dissatisfaction with the sociolinguistic explanations for speech variation. In order to explain phenomena of intra-speaker style variation, sociolinguists had constructed taxonomies, which referred to three aspects of the communicative situation: the topic, the participants and the setting. SAT emphasized only one of these levels: the participants. In 1988, the topic and setting levels were reintroduced. Thus, over the past 15 years CAT has returned to the core of sociolinguistics.

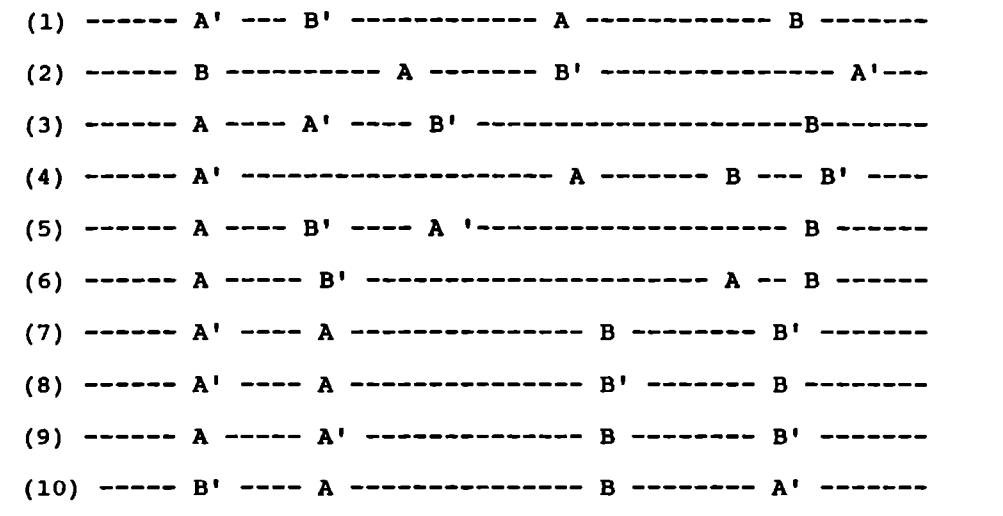
The most important achievement of CAT is perhaps a direct result of its dynamic focus on communication processes. The theory deals with a person's **perception** of the social setting, of the topic, and of the interlocutor. These are no longer regarded as static factors blindly determining speech production. Instead, they constitute aspects of the communicative situation by means of which interpersonal relations can be pointed into a valued direction.

2.2 EVALUATION OF ACCOMMODATION THEORY

Definition of speech strategies

Traditionally, convergence is defined as "a linguistic strategy whereby individuals adapt to each other's speech by means of a wide range of linguistic features" (Giles et al. 1987: 14). Divergence "refers to the way in which speakers accentuate vocal differences between themselves and others" (Giles et al. 1987: 14). Non-accommodation (the maintenance of one's speech characteristics) is regarded as functionally equivalent to divergence. These definitions may be perfectly self-explanatory and clear as long as the dependent linguistic variable for instance is the language two individuals from different ethnic groups agree upon (or do not). If applied in an interpersonal context however, it can be argued that the central speech strategies in the accommodation model, convergence and divergence, are inadequately defined (Boves, van Hout, Vieregge and Knops 1990).

Figure 2.1 Examples of convergent and divergent speech shifts of two speakers A and B (after Boves et al. 1990)



A, B: speech samples from speakers A and B in conversation with a same sex speaker
A', B': speech samples from a conversation between A and B, mixed sex dyad

In order to illustrate this point, imagine two speakers A (male) and B (female) of whom four speech samples are available: A, A', B, and B'. The samples A and B contain speech of the persons A and B recorded in a conversation with an interlocutor of the same sex. Samples A' and B' are taken from a conversation between A and B, which is a mixed-sex dyad. Assume also that all samples are measured on a linear scale for a speech variable (for instance, accent, articulation rate or pitch), and that this variable was measured exactly, so that differences between the four measurements are not due to measurement error. The measures obtained for the four speech samples can then be set out on a straight line as was done in examples 1 to 10 in Figure 2.1. Six difference scores can be computed between these four measurement points: AA', AB, AB', A'B, A'B', and BB'.

It is important to note that (as is obvious from Figure 2.1) increasing or decreasing speech differences between two interlocutors can be the result of numerous distinguishable configurations of these four scores on a straight line. However, not all of these configurations reflect the same underlying speech shifts. For instance in

both situations (1) and (3) the initial difference in AB has decreased in A'B', but situation (3) seems to be a more 'natural' example of convergence according to the definition of Giles et al. (1987) than situation (1). The same holds for (2) and (4) which are both examples of divergent strategies in which the difference AB is smaller than A'B' (Boves et al. 1990).

This conceptual problem can be solved by applying a more formal definition of convergence and divergence in which the shifts of both interlocutors are specified. The definitions for both speech strategies are composed of two parts, one for each individual speaker. The definitions (after Boves et al. 1990) are given below.

convergence:

Speaker A converges to speaker B if A'B < AB.
Speaker B converges to speaker A if B'A < AB.

divergence:

Speaker A diverges from speaker B if A'B > AB.
Speaker B diverges from speaker A if B'A > AB.

These definitions do not cover the most recent definition of accommodative talk as talk in which participants "achieve a high degree of fit". In spite of the fact that this recent definition makes sense at a general intuitive level, it is not quite clear how it can be operationalized for research purposes. Further, the definitions of divergence and non-accommodation do not concur with this new definition of convergence. The issue of how the speech strategies are defined for the purposes of this study is taken up in section 3.4.

Development of accommodation processes over time

Many questions remain as to the precise nature of accommodation processes. One important question concerns the development of the process over time. In many studies accommodation has been investigated in what can be referred to as a 'between-occasion' design. In this design the speech of subject A in conversations with interlocutor X (e.g. of the same sex or social group) is compared to the speech of subject A talking to interlocutor Y (e.g. of the other sex or from a different social group). Bilous and Krauss (1988) for instance compared the speech of males and females in mixed sex dyads and the speech of males and females in same-sex dyads.

A number of questions regarding the speech strategies remain unanswered in investigations in these between-occasion designs. There is, for instance, not much evidence as to how accommodation processes develop during a conversation. The

1975 model (see section 2.1) suggests that accommodation develops gradually over time, but it is not clear whether or not this model is still valid. Assuming it is (as it has never been replaced by a new model), how long does it take a speaker to accommodate? Do different speech features differ in this respect? There are perceptual problems involved as well. For instance: how does a speaker perceive and measure his interlocutor's mean speech tempo, given that speech rates change continuously during interaction?

Experimental evidence regarding the development of accommodation over time is somewhat contradictory. Douglas-Cowie (1978) found that informants in an Irish community adjusted their accents to an English interviewer in the first half of a conversation but returned to a less standard speech code in the second half of that conversation. In the "classic" accommodation experiment (Thakerar et al. 1982) similar results were obtained with regard to measures of accent and speech rate: differences increased in the course of the conversation. Gregory (1983; 1986) acoustically analyzed voice frequency levels in a number of dyadic conversations. Three speech samples were taken from the beginning, the middle, and the end of each conversation. His results do not demonstrate a strong relation between accommodation processes and the temporal factor. His data do not suggest that convergence or divergence increased over time (Gregory 1983).

The influence of status on accommodation processes

Some concepts that are included in the accommodation framework are not unproblematic in themselves. An example is the status of the participants in a conversation, which will determine the extent to which they shift their speech. As was mentioned in chapter 1, status has been considered an important factor in theories of language variation and language change ever since the beginning of this century (e.g. Kloeke 1927). However, it has been demonstrated that not all individuals respond to status differences in the same way. An important predictor of reactions to perceived status differences is a person's sensitivity to antidemocratic or authoritarian tendencies as measured by the F(fascisme)-scale (Adorno et al. 1950).

In numerous experiments researchers have tried to relate social behaviour to F-scale scores. These experiments demonstrated that certain situations may trigger an authoritarian response, and in such situations the behaviour of a high-F person will be different from that of a low-F person (Deaux and Wrightsman 1984). Status has been found to be a powerful situational aspect that triggers authoritarian responses. High-F personalities, as compared to low-F personalities, are more confirming and less hostile to high status sources (e.g. Roberts and Jessor 1958; Steiner and Johnson 1963; Higgins and McCann 1984).

Higgins and McCann (1984) gave their subjects an ambiguous description of a stimulus person, and asked them to describe that person to an interlocutor. All subjects were informed about their interlocutor's status. Additionally, half of the subjects were told their interlocutor liked the stimulus person, and the other half was told their interlocutor disliked the stimulus person. Higgins and McCann found

that in describing the stimulus person to an equal-status interlocutor, both high-F and low-F subjects adapted their description so as to bring it into agreement with the opinion their interlocutor held. However, in conversation with a high status interlocutor high-F subjects adapted their verbal description of the stimulus person to their partner's opinion significantly more than low-F subjects did. In fact Low-F subjects tended to give a description that diverged somewhat from the opinion their high-status interlocutors held.

These findings suggest that individuals might also respond differently to perceived status differences in a conversation in accommodating their speech. Some individuals might tend to emphasize these differences while others might tend to reduce them. So this factor might influence both the magnitude and the direction of an accommodative shift. As yet, however, these subtleties are not incorporated into the accommodation framework.

Perception of accommodation

It is beyond doubt that the accommodation framework has become more realistic over the years as more experimental findings were incorporated. However, a high price has been paid. The number of theoretically relevant variables has increased, and how these variables interact was not made explicit. As a result, the theory has lost predictive power. Let us look at one example in some detail. Ever since the 1982 version it has been impossible for a receiver to infer the speaker's attitudes or intentions from the perception of any modifications in his speech. According to the accommodation model a perceived divergent speech strategy may signify either a divergent strategy on behalf of the speaker, or a convergent strategy towards the speech characteristics the speaker expects the receiver to hold. The same holds for an act of objective convergence. Both convergent and divergent strategies can signal either psychological integration or dissociation.

This fact is somewhat obscured as interlocutor's perceptions in real conversations are difficult to measure. In many studies of the perception of accommodation (see Giles et al. 1987) a procedure is used in which groups of listeners rate tape recorded speakers on a number of personality attributes. These raters are typically not involved in the interaction, which may give rise to an actor-observer bias (Nisbett and Ross 1980). There is no reason to assume that the perception of a conversation by these raters is equivalent to the perception of interlocutors, who need to monitor very different activities.

Therefore, it is not known whether or not an **interlocutor** does indeed perceive the shift in the other person's speech, and reacts accordingly. What, for instance, must be the magnitude of a speech shift in order for it to be perceived as such by a specific interlocutor? Do all interlocutors respond to a shift in all speech variables in a similar way? If not, how does the speaker know? Is an optimal level of accommodation for raters (Giles and Smith 1979) equal to the level for interlocutors? And as noted before: how does a perceiver manage to measure his interlocutor's speech tempo at all, when it is in a constant flux during interaction?

These issues are not unproblematic and raising them forces us to think of accommodation principles in more detail than the propositions in Giles et al. (1987) reveal at first sight.

The explanation of convergence in the accommodation model

In chapter 1 examples were presented of what has been called convergence, response matching, synchronisation, congruence, similarity, adaptation, mimicry and correspondence. In the accommodation model these phenomena are interpreted as a more or less conscious strategy that speakers use in order to achieve one or more conversational goals. On the other hand, convergence might also be an automatic process that the speaker cannot consciously control. This interpretation would explain that convergence also occurs:

- in situations where there is no human listener (e.g. Black 1949; Webb 1972; Leiser et al. 1988);
- when the speaker is instructed not to match his response (Black 1949; Siegel and Pick 1974);
- under the influence of environmental stimuli other than the interlocutor (music) (Heckel, Wiggins and Salzberg 1963);
- with respect to variables that do not seem to serve a conversational function (Levelt and Kelter 1982).

Several other theories have been put forward to explain accommodation. These include the **communication model**, (Natale 1975), the **activation level model**, (Webb 1972), the **discrepancy-arousal model**, (Capella 1981), and the **sequential functional model of nonverbal exchange** (Patterson 1982). Accommodation theory is different from these other theories in its focus on intergroup relations and processes, and on speech strategies for purposes of identity maintenance. Several speech strategies (convergence, divergence, complementarity) are explained together in a unified framework. By virtue of this feature the accommodation model can be considered superior to its competitors (Street and Giles 1982). However, this does not imply that the accommodation model is superior if applied in the research area of interpersonal communication.

Street and Giles (1982) claim that speakers are much more aware of divergence than they are of convergence. In order to explain convergence they refer to psychological constructs such as scripts, schemata and routines. Convergence might be a form of scripted behaviour, operating at a low awareness level. Divergence, they argue, is used as a speech strategy in situations in which affective functions of identity maintenance are emphasized, that is mainly in intergroup settings. Divergence, then, occurs at a high level of awareness.

Even in Street and Giles' evaluation, the value of accommodation theory is dependent on the assumption that divergence can occur with respect to all speech variables, in all kinds of situations, and as a consciously applied speech strategy.

There is, however, a need for more experimental evidence regarding divergence, as it has only been demonstrated with respect to a limited number of variables and social settings. Divergence as a strategy has only been observed in intergroup settings, and with regard to one class of variables: language choice and accent.

Processes of convergence and divergence are commonly studied with respect to a limited number of variables only (Giles et al. 1987). Therefore it is not known whether or not people who diverge in their accents at the same time converge in other speech variables such as tempo or intensity. If they do, then perhaps it is the case that convergent and divergent strategies are not two sides of the same coin, but instead very different phenomena. Convergence in this case might be an automatic process, and only divergence in language or accent can be seen as a genuine speech strategy of the more social type.

If the accommodation model is evaluated in terms of more sophisticated models of speech production such as Levelt's (1989), it is obvious that the theory is restricted to aspects of what Levelt calls the 'macro-planning' of utterances. In Levelt's model the result of the macro-planning stage is an elaborate communicative intention, which has to pass through several processing mechanisms before it is finally voiced. It is not improbable that more or less automatic processes are operative that result in speech convergence in these successive stages (Levelt and Kelter 1982; Bock 1986). Convergence, then, is not a result of an intentional act. Hence, as long as there is only limited evidence of divergence in other speech variables such as language choice, it cannot be decided whether or not the explanation of convergence offered by the accommodation model really is the best available (Boves and Knops 1989).

2.3 GENERAL HYPOTHESES

More problems were raised in the previous section than could be solved in this study. As mentioned in chapter 1, the general aim of this study is to analyze processes of accommodation in short conversations between two previously unrelated persons. To that aim, seven hypotheses are explored in a laboratory experiment. Details of the set-up of this experiment and statistical analysis are commented on in the next chapter. The hypotheses, which follow in part from the evaluation in the previous section and were derived from a restricted interpretation of CAT's propositions, are introduced below.

Most experimental evidence in CAT has been collected in situations in which the participants aim at co-operation (Giles et al. 1987). One might wonder whether or not convergence also occurs in conversations in which the participants aim at competition. If so, this suggests that convergence is a general feature of different types of discourse. The issue obviously has implications for the explanation of

convergence in the accommodation model. In order to explore this issue, accommodation processes are compared in two conversation types: co-operative and competitive. These two conversation types will be operationalized in the experiment by creating differential antecedents for co-operation and competition.

As was already pointed out, accommodation is investigated in most studies with respect to a limited number of variables only (in general one or two). Hence, it is not clear whether or not interactants converge in some features on some levels, and simultaneously diverge or non-accommodate in others. In this study, accommodation will be investigated for various verbal, prosodic and paralinguistic variables simultaneously.

The hypotheses regarding accommodation in co-operative and competitive conversations are given below. In these hypotheses the central speech strategies of convergence, divergence and non-accommodation are still left undefined in formal terms.

1) In co-operative conversations high and low status subjects will converge their speech simultaneously for several variables at different speech levels.

2) In competitive conversations high and low status subjects will diverge and/or non-accommodate their speech simultaneously for several variables at different speech levels.

As argued in the previous section there is very little evidence regarding the development of accommodative behaviour in the course of a conversation. In order to explore this issue the following hypotheses are tested:

3) If two members in a dyad converge their speech, the similarity in their speech characteristics increases as time proceeds.

4) If two members in a dyad diverge their speech, the similarity in their speech characteristics decreases or remains unaltered as time proceeds.

In order to test these hypotheses, two speech samples are taken from all conversations for both members of a dyad: one from the first three minutes (denoted as t1), and one from the final three (denoted as t2). Speech similarity between the members of a dyad will be compared at both measurement points.

In section 2.1 it was noted that research in accommodation theory has left encounters involving participants of unequal status largely unexamined. In order to get more insight into the influence of status on accommodation processes, the focus in this study is on unequal status dyads in an interpersonal setting. All subjects are

Dutch and were born and raised in Nijmegen, a town on the eastern border of the country. In all dyads one member holds a high status and the other a low status. In order to elaborate on the notion of status in CAT it is not related to the subjects' socio-economic position. Instead, status is operationalized in the experiment in terms of 'expert status'.

In the previous section (2.2) it was mentioned that perhaps not all high and low status speakers will respond similarly to perceived status differences. Independently of their own status, some individuals may tend to emphasize perceived differences, while others may tend to decrease them. If this is the case, then status will have no general main effect on the extent and the direction to which individuals accommodate their speech. However, in line with the CAT propositions, status related effects must be expected to occur.

In its most recent version, CAT holds that interlocutors in a conversation accommodate to the stereotypes they have regarding the speech of their interlocutor, and not to their actual speech characteristics. In order to test this aspect of the theory, status and regional accent of the subjects are crossed in the experimental design. High status subjects speaking standard accented Dutch are brought into conversation with low status subjects speaking Nijmegen accented Dutch, and vice versa. When two interlocutors intend to converge their efforts result in mutual speech convergence if these stereotypes coincide with the interlocutor's actual speech characteristics. These stereotypes will be assessed by means of a questionnaire. According to the antecedents for convergence and divergence in CAT's propositions, the following hypotheses are tested:

5) High status subjects and low status subjects differ in the extent to which they accommodate their speech.

6) High and low status subjects have different stereotypes with respect to the speech of their interlocutor.

7) High and low status speakers accommodate exclusively to the stereotypes they have regarding the speech of their interlocutor.

Hypotheses 1 to 5 are tested with regard to speech variables at the verbal and the nonverbal channel. The results are presented and discussed in chapters 4 to 7. Hypotheses 6 and 7 are dealt with in chapter 8.

3 METHODS: PILOT EXPERIMENT AND EXPERIMENTAL DESIGN

3.0 INTRODUCTION

The general hypotheses formulated in section 2.3 could hardly be investigated by analysing unstructured conversations in real life. The hypotheses specify several independent variables, which cannot be controlled under normal conditions. Therefore, the hypotheses were tested in a laboratory experiment in which pairs of individuals engage in a conversation. In the ideal case, the situation that is created in the experiment is a close approximation of a natural communicative situation. In this chapter, the design of an experiment is discussed which, to a sufficient degree, meets this requirement.

Both participants in a conversation are subjects in the experiment. It is not the case that one of the members of a dyad is an interviewer or a confederate, which is relatively rare in sociolinguistic research. Therefore, it is very important that both members of a dyad actively participate in the conversation. If one member in a dyad dominates the floor and the other is silent most of the time, the conversation is useless for the purposes of this investigation. Precautions must be taken to assure that both will talk enough. This can be done by selecting an appropriate experimental task. With respect to the analysis of the speech material, it is important that the quality of the recorded conversations meets sufficiently high standards.

As is obvious from the hypotheses in section 2.3, central independent variables in the experiment are the type of conversation (co-operative - competitive), the status of the participants (high - low), and their accent (standard Dutch accented - Nijmegen accented). Two of these independent variables are experimentally manipulated: the type of conversation and the status of the participants. The subjects' accent is a 'natural' background variable which can be controlled for in the selection of the participants.

In order to control some of the problems which may result from this type of experiment, a pilot experiment was carried out. The principal aim of this pilot experiment was to test the experimental manipulation of two independent variables: conversation type and status. In addition, an experimental task, the equipment and other materials were tried out. The design and the outcome of this pilot experiment are discussed in section 3.1. The results demonstrated that the manipulation of conversation type was not successful.

In order to solve the problems regarding the design of the experiment, the literature on 'experimental gaming' research was consulted. Conclusions from this survey are presented in section 3.2. These conclusions suggest several important modifications of the experimental task and the procedure. In section 3.3 an outline is presented of the design for the final experiment and the procedure followed.

In section 2.2 some problems were discussed with respect to the definitions of

central speech strategies in accommodation theory. In section 3.4 this issue is taken up again. Convergence and divergence are defined for the context of this investigation. In addition, the statistical analysis of the hypotheses is commented on. In the final section of this chapter (3.5) the speech material recorded in the experiments is characterised in general terms.

3.1 PILOT EXPERIMENT

3.1.1 Method

Subjects

The subjects in the pilot experiment were 20 males, aged between 16 and 18. They were recruited from two secondary schools in Nijmegen. Age and social group were matched. The subjects attending one of these schools volunteered for participation by signing their name on a list. The subjects attending the other school were asked to participate by a fellow pupil. Subjects from two different schools were combined in a dyad in order to reduce the chance that the interlocutors were previously acquainted. All participants received a standard fee of 10 Dutch guilders. The experiment was introduced as an investigation into negotiation strategies.

Experimental task

The experimental task was derived from the game of tangram. Tangram is a Chinese puzzle that consists of seven pieces (one rectangle, one parallelogram and five triangles), and a booklet of drawings (irregular geometrical shapes). The rules of the game are straightforward: in solving a drawing all seven pieces should be used, all pieces must lie flat, and they should not overlap.

In the experiment one of the subjects was given a booklet with four drawings (a nun, a bird, a boat, and a gun). The other held the seven tangram pieces. In this way, the materials necessary to play the game were divided over the two participants. The two members of a dyad were placed in separate rooms, and they communicated by means of microphones and headphones. They were instructed to solve a puzzle by sharing the information they had.

In general one would expect that in most conversations the subject who holds the drawings will dominate the floor, especially in the first phase of a conversation, as he must start by describing what the drawing looks like. Therefore, both subjects were instructed to engage in the conversation as actively as possible, for instance by asking for relevant information. In a few pre-pilot sessions it turned out that

participants who are very good at tangram completely dominate the conversation when they hold the drawings. Therefore, it was decided to make sure that the best player in a dyad would hold the tangram pieces.

Technical equipment

In a few pre-pilot sessions, pairs of headsets were tested (headphones with a microphone attached to them as used by aircraft pilots). The microphones of these headsets were not fit for making high quality recordings. As a result, it was decided to use:

- 2 Sennheiser microphones type MD421N;
- 2 Sennheiser headphones type HD414SL;
- 1 Revox tape recorder;
- BASF type LGR30P audio tape.

The subjects communicated by means of a set of headphones and microphones. These microphones supplied the input to a tape recorder which was placed in a third room, the control room. The members in a dyad were recorded on separate input channels.

Rating scales

In order to assess the subjects' perception of the experimental situation and their interlocutor, a rating booklet was prepared which contained 37 questions. Most items were posed as bipolar 7-point scales. The questions were divided into 3 categories. There were 12 questions addressing the personality of the interlocutor, 21 addressing their partner's speech characteristics (a few of which were unipolar 4-point scales), and 4 addressing the subjects' view of the situation. Every page in the booklet contained one question, and questions were randomized.

Operationalisation of status: status assignment

In social psychology, a relation between two people is often characterized by their relative differences and similarities. Being equal or not on a dimension of social power is regarded as a fundamental aspect of a relationship (e.g. Brown 1965; French and Raven 1959; Higgins and McCann 1984). Processes of social power are pervasive, complex and often disguised in our society. An influential source of power differences is 'expert power' (French and Raven 1959).

Social status is related to social power, although the nature of this relationship is somewhat opaque. There is no universally acknowledged status system that is applicable in all circumstances. Brown (1965: 55) has defined status as follows:

"Social status accrues to a person to the degree that he possesses characteristics valued by his society". In our society, being an expert, having knowledge, is commonly regarded as a highly valued characteristic. Hence, status can be related to 'expert power'.

Status was experimentally operationalised as expert power. In order to create a basis for the assignment of status, the subjects' proficiency in tangram was measured by means of a standard test. In this test of tangram proficiency, subjects had to solve four tangram exercises of increasing difficulty. The experimenters registered the time it took them to solve each of these exercises. After five minutes the test was terminated.

The instruction given to create a differential status consisted of two components. The first component referred to the performance of the subject as compared to 'most other people', and second to the other participant in the experiment. High-status subjects were told they were very good at tangram because they had performed better than most people do, and that the interlocutor performed worse than most other people did. The low-status subjects were told the opposite: that they were not good at tangram because they did not perform as well as most other people, and that they were considerably worse than the subject they were going to talk to. This procedure is similar to the status assignment procedure in Thakerar et al. (1982). The status assignment does not coincide with the participants' social status (SES), no matter how this concept is defined.

Antecedents for co-operative and competitive conversations

In order to create antecedents for a co-operative conversation the subjects were told their performance in the conversation would be compared to the performance of the other dyads involved in the experiment. This should lead the subjects to infer that each dyad was a team in competition with all other dyads. In order to create antecedents for competitive conversations, the subjects were told their individual contribution would be compared to that of their interlocutor. This information should bring about the inference that each subject was in competition with his interlocutor.

All dyads were involved in both a co-operative and a competitive conversation. There were two bonus prizes to win (25 Dutch guilders), one for the best subject, and a second for the best dyad. After this information had been given, the dyads started either in a co-operative or a competitive conversation (see Figure 3.1).

Procedure

The experiment took place at the Nijmegen Department of General Linguistics and Dialectology. It was carried out by two experimenters, each of whom attended to one of the subjects in a dyad. In order to control for communication over the visual

channel, precautions were taken to prevent the subjects from seeing each other either before or during a session. The subjects were guided to separate rooms, placed behind a desk, and made to feel at ease. Next, the participants were given the tangram proficiency test. After this test was completed, the experimenters left the room, and compared the performance of the two subjects. The most proficient subject was assigned the high status.

Figure 3.1 Design of the pilot experiment

task order I	task order II
1 co-operative 2 competitive	1 competitive 2 co-operative
high x low	high x low
d=5	d=5

d = number of dyads

The experimenters returned, and informed the subjects about their status. Next, the subjects were told they had to solve a tangram puzzle with the help of the unequal status partner, and that they were going to receive further instructions which were recorded on tape. It was made explicit that the experimenters did not listen in on them directly (Bell 1984), and that from this point on every next step in the experiment was guided by tape-recorded instructions. Finally, the participants were asked to repeat the instructions aloud (after they had heard them played back from the tape), and to fill in a rating booklet as soon as they received a recorded signal instructing them to start doing so.

Once it was obvious that the subjects understood the procedure, they were left alone in their rooms. The tape recorder was started, and the subjects heard the instructions for the first task over the headphones. The experimental design is summarized in Figure 3.1. All dyads performed in both conversation types. In half of the session, subjects did the co-operative task first, and the competitive task second. For the second half of the sessions the task order was reversed. All subjects performed in both conversation types.

For each dyad an audio tape was prepared. This tape started with the instructions for the first task, which were read aloud by a standard Dutch speaker. The instructions were followed by about 2 minutes of blank tape for recording the subjects' summary of the instructions. These 2 minutes of blank tape were followed by a message to stop summarizing, and to start playing. This message was followed

by a section of blank tape of 15 minutes for recording the conversation between the two participants. This sequence was repeated for the second conversation type. Sections of audio tape were separated by short sections of 'stop'-tape. Every time the tape stopped, the experimenter in charge of the tape-recorder had to throw some switches in order to record speech, or to play a pre-recorded message.

Subjects heard the instructions, were asked to repeat them aloud, and were asked (by means of a tape recorded message) to start the first task. The subjects were then put in touch by microphones and headphones. After 15 minutes they were interrupted by a tape recorded signal, and asked to fill in the rating booklet for the first task. Next, the subjects heard new instructions for the second task, were asked again to repeat these instructions, and the second task began. Again they were interrupted after 15 minutes, and asked to fill in the second rating booklet. The subjects were debriefed, and encouraged to comment on the procedure. Each session lasted for about 90 minutes.

3.1.2 Results and discussion

Experimental task

The subjects reported that they felt at ease, that they felt they were in a fair situation, and that they did not feel particularly tense. The tape-recorded conversations suggest that the subjects felt they were unobserved. Although they knew that the conversation was being recorded they felt free to comment on the task and on the experimenters. One dyad even refused to follow instructions and had a friendly chat instead of playing the game. In general, the subjects' evaluation of the task was rather positive. Some of them even explicitly said they had enjoyed playing. It proved extremely difficult to find the right solution for an exercise.

The main function of the experimental task was to provide an opportunity for both members in a dyad to engage actively in a conversation. Therefore, the position in the experiment should be equal for both subjects. However, the pilot experiment demonstrated there was a considerable task related asymmetry. The subjects holding the drawings in fact were in control of the total situation, as they possessed an unequal share of the information. Because we had predicted that this problem could arise, the drawings were handed to the low status subjects.

For both participants, and for both conversation types, three speech samples were edited from the recorded material. The first sample is the subjects' summary of the instructions which contain about 60 seconds of speech. This would suffice for the purposes of the experiment.

Careful editing of the speech samples from the conversations demonstrated that even for the most passive subject it was possible to sample about 50 seconds of speech out of the first three minutes of the conversation (t1), and out of the last three minutes (t2) as well. As was mentioned in the paragraph on the technical equipment, two members in a dyad were recorded on separate input channels. Thus,

as there are no overlaps, the editing of neatly separated speech samples for the two members of a dyad is relatively easy. For the passive subjects, the 50 seconds of speech consist of many short utterances. For the more active subjects it was not difficult to edit about 90 seconds of speech out of the same passages in a limited number of utterances.

Evaluation of the technical equipment

The quality of the recordings was sufficient to support instrumental acoustical analyses, but there was room for improvement. There is some 'leakage' from the subjects' headphone into the microphone. So whenever both subjects talk loud, they are faintly audible on both channels. In addition there was a lot of intermittent background noise caused by the clicking of the wooden tangram pieces and the rustling of the drawings.

Effect of status assignment

As the two experimenters independently noted, most subjects in the pilot experiment clearly responded to the assignment of status. The participants who were told they were very good at tangram showed pride, whereas their interlocutors were often disappointed. Most likely, both high and low status subjects inferred some relation between tangram proficiency and their overall cognitive competence (such as being intelligent or good at mathematics).

Statistical analysis of the answers to the questions in the rating booklet confirms the observation that high and low status subjects reacted differently to the status instruction. For the statistical analysis[1] the 7-point bipolar scale values were replaced by values from 1 to 7. The 4-point scales had the values 0 to 3, a zero score indicating the absence of the speech characteristic. A t-test shows significant ($p <= .05$, $n = 19$) status differences on 16 of the 37 rating scales. These scales are presented in Table 3.1 in which the scales are denoted by their right hand poles. The column 'mean ratings of high status interlocutor' contains the ratings given by the low status subjects. Most of these ratings address the personality and the speech of the high status interlocutors. There is an exception for the final three scales. These refer to the subject's perception of his own situation.

In general the differences take the expected directions. High status subjects are perceived to perform better (they ask good questions and explain well), and they rank higher on a task related trait (competence). The scores on the dominance scale reflect the asymmetry related to the task: low status subjects are perceived as being

[1] The ratings for the dyad that did not follow the instructions are not included in the statistical analyses.

more dominant probably because they hold the drawings and therefore have more power to dominate the conversation. Again this indicates that the task related asymmetry was not balanced by handing the drawings to the low status participants.

Several differences emerged between high and low status subjects with respect to the perception of the interlocutor's speech. High status subjects were perceived to articulate more precisely and to speak less disrupted than the low status subjects. Low status subjects' speech was perceived to be more accented and more nasal.

Table 3.1 Significant effects of assigned status on rating scores

rating scale	mean ratings high status interlocutor	mean ratings low status interlocutor	t	p
competent	5.65	3.45	4.86	.00
self-confident	5.17	4.00	2.10	.04
dominant	4.72	6.28	4.05	.00
arrogant	1.72	3.05	-4.53	.00
will-power	2.94	4.17	-2.31	.03
prec. of artic.	5.83	4.44	2.81	.01
nasal	.11	1.00	-3.91	.00
standard accent	6.50	5.33	2.58	.02
disrupted	2.33	3.50	-2.47	.02
good questions	5.94	3.89	4.16	.00
talks much	4.06	5.50	-3.46	.00
explains well	5.29	3.22	4.23	.00
unfair situation	4.56	3.17	2.35	.02
tense	3.56	2.22	2.17	.04
superior	5.00	3.89	2.81	.01

Effect of conversation type and task order

From a t-test on the rating scales few differences emerged between the two conversation types. In the co-operative conversations the interlocutor was perceived as less aggressive, more friendly and speaking less disrupted. The recordings and the comments of the subjects at the end of the experiment both demonstrate that all subjects had trouble in dealing with the competitive conversations. Several dyads discussed the purpose of the experiment in these conversations, instead of playing the game. In addition, the recordings demonstrate that it was even more difficult for the subjects to be competitive after they had been co-operative in the first task. Obviously the subjects in this task order just did not know how to proceed. In some conversations they lost motivation and started to chat, in others they just continued

their first task. The other task order (competitive - co-operative) probably is much more 'natural'.

As was mentioned in the procedure section, the rating booklet was filled in twice, once after each task. Differences between the scores on the two occasions were tested for significance by means of a t-test. Only three out of 37 scales differed significantly. This might indicate that the subjects interpreted the second occasion as a check on the consistency of their perception.

Individuals do not behave consistently over different situations. However, people tend to interpret another person's behaviour in a specific situation to be the result of his personality characteristics (which we see as stable, invariant traits), and not the result of the demands made by the situation (Nisbett and Ross 1980; Jones 1986). Ross (1977) introduced the name 'fundamental attribution error' to denote this shortcoming of human inference.

The fundamental attribution error may account for the fact that for all scales the differences between the first and the second rating are negligible. In the experiment the subjects created an impression of their interlocutor during the first task, and they reported on their impression at the end of it. They take this impression as an estimate of stable, invariant personality characteristics or speech characteristics.

3.1.3 Summary of conclusions

The experimental task appeared to be suitable for the purposes of this experiment because enough speech was obtained for both participants in a dyad. Although the subjects did not report any problems with this task, some improvements could be made with respect to the asymmetry of the task. In general the subjects in a conversation felt relatively unobserved, although they knew their conversation was being recorded.

The technical equipment worked well. The quality of the recordings was sufficient, but could be still improved. Background noise might be reduced by using plastic tangram pieces instead of wooden ones, and by covering the drawings with a plastic layer. It proved feasible to structure the experiment by using recorded instructions, empty spaces for recording the conversations, and messages to start or stop a specific task.

The assignment of status, which was operationalized as 'expert power', worked out as intended. Subjects differed with respect to their competence in the experimental task, and these differences were clearly reflected in the reported perception of the interlocutor. However, the ratings for the interlocutor's dominance reflected an undesirable task related asymmetry as well.

There is room for improvement with respect to the manipulation of conversation type. The two conversation types in the pilot experiment in fact did not really differ, neither in the subjects' perception, nor in their behaviour as far as this is recorded on audio tape. In addition, there were problems related to task order. If all subjects participate in both conversation types, then task order must be balanced in the experimental design. If, however, the sequence co-operative - competitive is

less natural than the inverse task order, differential effects of task order will inevitably occur. Hence, balancing task order itself has negative effects. This leads to the conclusion that it is not desirable to have subjects participate in both conversation types.

3.2 ANTECEDENTS FOR CO-OPERATIVE AND COMPETITIVE CONVERSATIONS

In order to find solutions for the problems regarding the design of the experiment, the literature on 'experimental gaming' research was consulted. Conclusions from this survey are presented in this section. The main focus will be on the concepts of co-operativeness and competitiveness. Issues of co-operativeness and competitiveness have been studied by researchers working in the field of social conflict. The topic has "captured the imagination of social psychologists for as long a period of time as any other problem in the field" (Raven and Eachus 1963: 307).

In this section the concepts are introduced as they are investigated in the context of experimental gaming research (3.2.1). Next, an experimental task is schematically presented, which is based on the task used in the pilot experiments, but which was improved in the sense that principles from the experimental gaming tradition were incorporated (3.2.2).

3.2.1 Experimental gaming and interdependence

Pruitt and Kimmel (1977) note that the origin of the experimental gaming tradition can be traced to conceptual developments in two areas of research: social conflict and interpersonal relations. The concepts 'attitude' and 'aggression' dominated early social psychological thinking about conflict. This theoretical framework ignored perceived differences of interest which clearly play a major part in generating most conflicts. In the late 1940s and early 1950s some scholars began to see differences of interest as antecedents for conflict, and consonance of interest as a road to conflict resolution. Attention focused on the ways in which conflicting parties are interdependent.

A similar development took place in research into interpersonal relations. In the earliest theoretical approaches attention was focused on attitudes, perception and feelings. In the late 1950s attention shifted to the impact of incentives (rewards and penalties) on behaviour. As these incentives are controlled by other people, some scholars began to focus on the nature of interpersonal dependence.

The implicit assumption underlying the experimental gaming tradition is that

behaviour can be interpreted as a set of decisions aimed at achieving valued outcomes. Experimental games are best described as laboratory tasks which are applied to study how people behave in situations of mutual interdependence. More specifically, situations are explored "where:

(a) each individual must make one or more decisions that affect his own and the other's welfare;
(b) the outcomes of these decisions are expressed in numerical form;
(c) the numbers that express these outcomes are chosen beforehand by the experimenter" (Pruitt and Kimmel 1977: 363).

Most of the research has focused on so-called 'mixed-motive' games in which the interests of two parties partially coincide and partially conflict.

Hamburger (1979) notes that the key idea of a game in game theory is that players make decisions that affect each other. Examples of real situations where outcomes depend on the actions of several parties are easy to find. For instance, the outcome of the Gulf war depended not only on U.S. decisions to bomb or withdraw, and so on, but also on Irak's decisions, and those of various other parties (Israelis, Palestinians, the United Nations etc.). All of these parties, be they persons, organizations or nations, make decisions that have consequences not only for themselves, but for others as well, and are in turn crucially affected by the decisions of the others. "Game theory is a unified approach to this broad array of political, social, and economic situations. A game-theoretic analysis requires answers to several key questions: Who has decisions to make? What are the different options available? What will be the result of the various possible combinations of choices? Which results are preferred by whom?" (Hamburger 1979: 2).

These questions relate to four central elements: players, choices, results and preferences. All of these feature prominently in common games such as chess or monopoly. However, in these games, unlike experimental games, one of the players wins and the other loses. They are of the 'zero-sum' type. If, on the other hand, two presidents decide to start a nuclear or chemical war, both might end up as losers. Zero-sum games lack this element which is essential to real-life decisions, and hence have a limited experimental value.

The aim of gaming research can be defined as the modelling of realistic situations, and the prediction of realistic outcomes. In order to make a successful model, a game has to simplify a situation in such a way that an explicit choice structure can be specified. Therefore one has to know which parties are involved, which choices they have, what the result of these choices is, and which result the parties prefer. These elements can be formalized in a so-called 'payoff matrix'. Figure 3.2 contains a payoff matrix from a 'prisoners' dilemma game' (adapted after Brown 1965).

Assume that two general directors of the Department of Education are taken into custody. They are (rightly) accused of illegally reducing the income of young

scientists. They are interrogated separately, and have no opportunity to communicate. Both are offered two choices: either they confess or they do not. If a director fully confesses, his penalty is reduced, but it is still dependent on the choice of the other director as specified in Figure 3.2.

It is assumed that this society is modern and fashionable, and so are the penalties. In case they both confess, they are sentenced to pay back the salary they earned over the last 8 years. If they both deny the charges, they cannot be sentenced for that crime, but they have committed some others as well. In that case, both have to pay back last year's salary in total. Finally, in case director A does confess, and B does not, A's penalty is minimal as his penalty for the lower crimes is reduced to paying back the money he has earned over the last six months. In this case the penalty for his fellow prisoner B is maximal: he must pay back the money he has earned over the last 20 years.

Figure 3.2 Payoff matrix in a prisoners' dilemma game (after Brown 1965)

		director B	
		confess not	confess
director A	confess not	A 1 year B 1 year	A 20 years B 6 months
	confess	A 6 months B 20 years	A 8 years B 8 years

In this payoff matrix the final individual outcome is dependent on the choice of both players. What makes this matrix prototypical is the fact that the most preferable outcome is for A to confess, while B does not. However, in case A confesses and B does also, the result for the individual players is not the best possible. The irony in the prisoners' dilemma is that the most rational choice (to confess) does not result in the most preferable outcome if both players do so.

The prisoners' dilemma game is an example of a 'mixed-motive game': it features a co-operative and a competitive aspect simultaneously. In experiments, the game is played for a fixed number of trials. In the traditional setting players just exchange their choice, and do not have any opportunity to communicate.

Depending on the series of outcomes, the player's choice strategy is characterized as co-operative or competitive. Now, a mutual co-operative strategy can be defined

as a series of choices in which both prisoners aim at the outcome that is the most preferable for both. A competitive strategy is defined as a series of choices in which both players aim at an outcome that is advantageous to themselves, at the cost of the other player.

Evaluation of the pilot task in terms of options and preferences

If the experimental task used in the pilot experiments is evaluated from the point of view of the experimental gaming literature, several shortcomings are obvious. First, and most importantly, the structure of the experimental task was deficient in the sense that the two players were not mutually interdependent. Under both the co-operative and the competitive instructions the performance of the two subjects in a dyad in fact was largely independent. Second, there is no immediate reward for following the instructions. Therefore, a fine option is to chit-chat and have a good time. In addition, an incongruency of status and information in groups or dyads, which occurred during the pilot experiment, is generally evaluated negatively by the participants (Van Kreveld 1979).

As was noted above, there are many studies investigating co-operation and competition which used the experimental gaming paradigm. In many of these experiments, however, communication is minimal. Choices are exchanged by pushing buttons or exchanging written notes. The possibility to communicate emerges from these studies as a factor that can influence the choice for a co-operative strategy in humans (e.g. Nemeth 1970; Lindskold, Han and Betz 1986), or rats (e.g. Gardner, Corbin, Beltramo and Nickell 1984).

In short, no task was found in the literature on experimental gaming that is both well described and suitable for the purposes of our experiment. It was decided, therefore, to construct an experimental task that models a mixed-motive situation with a non-zero sum outcome, and in which verbal communication between players is central: the "Bank Robbers" game.

3.2.2 The Bank Robbers game

The "Bank Robbers" game is described below in terms of players, materials, goals, and preferences. The general aim of the players is to open a safe in a bank. In order to do so, the players must discover the secret code.

Players

There are two players A and B (in the experiment these are combined in a dyad according to their relative tangram-proficiency).

Materials

Each player has one set of tangram pieces, and one drawing. The drawings were especially prepared for the purposes of this game. Each drawing contains one half of an alpha-numeric character that is composed of tangram pieces (an example is presented in the Appendix). Each drawing is designed and thoroughly tested to ensure that the character it is a part of cannot be recognized. The character becomes visible if two drawings are put together in the right way, or if the missing tangram pieces are added correctly.

The players A and B cannot see each other nor can they see the other person's drawing. One way of achieving this is to ask them to sit in separate rooms, in which case they can communicate through microphones and headphones. Their task is to add the missing half to their drawing by means of a variable number of tangram pieces. The missing half of the character is specified by the drawing the other player holds. Thus, the players are mutually interdependent. The total playing time is limited to 20 minutes.

Reward structures

Both players receive a standard fee for participating. In addition, they can gain an extra reward based on their performance in the game. The opportunity to earn real money is an added incentive in both conversation types (Nemeth 1970). Appropriate reward structures support either co-operative or competitive strategies. Both reward structures are described below.

Reward structure co-operative conversations

In the instruction for the co-operative conversations it is emphasized that the safe will open up only if both players succeed in correctly completing their drawing, that is the way this is specified on the drawing the interlocutor holds. The players are made familiar with a payoff matrix that specifies their additional fee if they manage to open the safe. The payoff matrix is given in Figure 3.3.

Options

There are four logical options, two of which are equal on an abstract level (specified both as option 2). The players can aim:

1) at succeeding both,
2) at making sure one succeeds, in which case the other does not,
3) at failing both.

Figure 3.3 Payoff matrix co-operative conversations (in guilders)

		other	
		succeed	do not succeed
you	succeed	5, 5	3, 1.5
	do not succeed	1.5, 3	0, 0

Preferences

Figure 3.3 gives the payoff connected to the specified options. It is obvious that option 1 is the most preferable for both players as they earn most. In order to reach this outcome, the players have to communicate the information they possess as accurately as possible. If one of them does not succeed, and the other does (option 2) they still receive an extra reward. Because the characters are designed in such a way that they cannot be recognized from one drawing only, communication is obligatory in order to succeed in either option 1 or 2.

Reward structure competitive conversations

In the instructions for the competitive conversations it is emphasized that robbers cannot be trusted even by their fellow robbers. The safe will open up if one of them succeeds in completing his drawing correctly, that is as specified on the drawing the other robber holds. The players are made familiar with the payoff matrix in Figure 3.4.

Options

Again there are four logical options, two of which are equal on an abstract level (specified both as option 2). The players can aim:

1) at succeeding both,
2) at making sure one succeeds, in which case the other does not,
3) at failing both.

Figure 3.4 Payoff matrix competitive conversations (in guilders)

		other	
		succeed	do not succeed
you	succeed	3, 3	6, 1.5
	do not succeed	1.5, 6	0, 0

Preferences

Figure 3.4 gives the payoff connected to the specified options. It is obvious that option 2 is the most preferable in this matrix for each individual player, but not for both. In order to succeed in this option the players have to receive as much information as possible, and to give as little as possible in return. The option in which both players succeed is preferable to the outcome that none of them succeeds. This option was offered in order to encourage interaction. As the characters are designed in such a way that they cannot be recognized from one drawing only, communication is obligatory in order to succeed in either option 1 or 2.

The bank robbers game in the accommodation experiment

In the final experiment (the procedure of which is described in the next section), the "Bank Robbers" game with one minor modification was used as experimental task. In a few pilot sessions it was found that some dyads managed to find the secret code in less than 10 minutes. In order to ensure that all dyads would use at least 15 minutes of conversation time, a code was used which consisted of two characters instead of one. As a result, each player had two drawings and two sets of tangram pieces.

Materials related to the task

The tangram pieces used in the experiment were home-made cardboard ones, covered with a plastic layer. Their format was identical to the format of the original

wooden pieces. They were very 'silent', and made almost no noise when moved. The drawings were on paper which was covered in plastic copy safe pockets in order to reduce the rustling noise.

Ten alphanumeric characters were composed consisting of 8, 10, or 14 tangram pieces. These characters were first tested in order to find out whether or not they could be correctly identified. To that aim they were presented to a panel of five members one by one. The panel was asked to name the character as quickly as possible. As a result of this test, one of the characters was removed from the set because two members of the panel did not identify it correctly.

Next, the remaining characters were divided into two parts of an equal number of tangram pieces. The halves were displayed to a new panel of five members, who were asked to identify the character this drawing was a part of. Two of the characters were identified by three members of the panel after seeing one of the halves. These characters were also removed from the set. Thus, seven characters were obtained that were easily identified when displayed completely, but not when only one of their halves was displayed. The appendix contains an example of the digit '4'.

3.3 METHOD IN THE ACCOMMODATION EXPERIMENT

In this section the final experiment is presented. First, a pre-test is outlined in which the participants' tangram proficiency was assessed, and speech samples were recorded in order to rate their regional accent (3.3.1). The participants' proficiency in tangram is important because of the assignment of status. As was noted in the introduction to this chapter, the subjects' accent is one of the independent variables in the design. It is a natural background variable which can be controlled when participants are selected. In the pre-test, speech samples were recorded for all potential participants, and these were rated on a standard accented - Nijmegen accented dimension. In section 3.3.2 the experimental design is described. Two groups of subjects played the Bank Robbers game under either a co-operative or a competitive reward structure. The procedure is outlined in section 3.3.3.

3.3.1 Procedure in the pre-test

Potential participants were males, 16 to 20 years old, living in Nijmegen or the area around Nijmegen. They were attending secondary school in this town. They were recruited by means of advertisements in the local press. The experiment was introduced as an investigation into negotiation strategies.

A few weeks before the experiment, participants were visited at home in order to be pre-tested. The aims of the pre-test were to assess a participant's regional accent and to measure his tangram proficiency. The sessions on average lasted between 20 and 25 minutes. About 120 participants were involved, who did not receive a reward for their contribution.

Rating of accent

The conversation between the experimenter and the participant was recorded on tape. In addition, the participants were asked to read aloud a standard passage containing the rules for the tangram game which was also recorded. The participants' accent in these recordings was rated on a 7-point scale by two linguists who are familiar with the Nijmegen accent. The 'spontaneous' material collected in the conversation, and the standard reading passage were rated separately. The two raters scored the material independently. Only in a few cases did the scores for one sample differ more than two points. These scores were discussed and eventually corrected.

In this way, four scores were obtained for each participant, over which a 'mean' accent score was calculated. If a participant's score was greater than 4, he was classified as an 'accent speaker'. If his score was 3 or less, he was classified as a 'standard speaker. The participants with an accent score between 3 and 4 were reserves. At the end of the pre-test sessions it turned out that 50% of the pre-tested subjects was assigned to the 'standard' group, and only 25% was rated as accented.

Tangram proficiency test

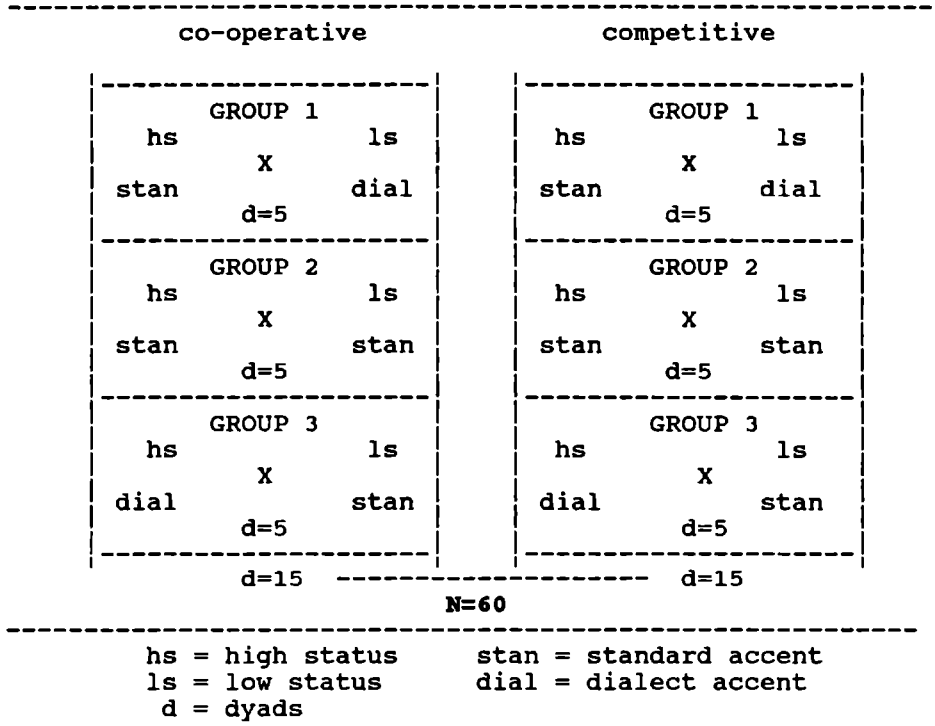
The procedure in the tangram proficiency test was similar to the one in the pilot experiments (see section 3.1.3). Participants were instructed to complete five standard tangram exercises of increasing difficulty as quickly as they could, and the experimenters registered the time used for each exercise. Based on the results of the first 30 participants, the median of the solution time was calculated for each exercise. For practical reasons the time available for each exercise was restricted to three minutes.

In order to assess a participant's tangram proficiency, the number of exercises for which he used more than the median solution time was added up. In case a participant exceeded this limit for solving two or more out of five exercises, his proficiency was considered to be low. By means of this procedure the participants were divided into two groups which were about the same size.

Design

Pairs of subjects were invited to come to the University of Nijmegen in order to participate in the experiment. All dyads were composed of one member who was proficient in tangram, and one who was less proficient. The dyads were randomly divided over the two conversation types. In addition, the participants' accent was taken into account. The procedure required to make appointments was very complicated and time-consuming because all pre-tested participants of course were not available at all times.

Figure 3.6 Experimental design



Status and accent are both controlled for in the experimental design. The Nijmegen accent is overtly judged as negative, and accented speakers are generally associated with the lower social classes (van Hout 1989). The experimental design is given in Figure 3.6. As this figure demonstrates, there are three status x accent groups. In

group 1, status and accent are in congruence as high status subjects speak standard Dutch and low status subjects speak Nijmegen accented Dutch. In group 3, on the other hand, the high status members of a dyad happen to speak Nijmegen accented Dutch. The status of the participants in this group is in conflict with the stereotypical expectations.

Originally the intention was to cross accent and status. This would require a fourth group in the design consisting of Nijmegen accented subjects only. Unfortunately, there were not enough Nijmegen accented participants in the pre-test to make this feasible. In fact, in order to complete the experimental design in Figure 3.6 it was necessary to include participants who had an accent score between 3 and 4. Hence, differences between standard accented and Nijmegen accented subjects are not as great as they would have been if there had been subjects with a strong Nijmegen accent in the pre-test sample.

Subjects

The subjects were selected from the participants in the pre-test (see above). Their mean age (in years) was 17.7. Mean age was about equal for both high and low status groups, and in both conversation types.

Procedure

The procedure followed for this experiment was similar to that in the pilot experiment (see section 3.1.2). The experimental task used is the "Bank Robbers" game described in section 3.2.3. Status was again operationalized as proficiency in tangram. Contrary to the pilot experiment, the subjects performed in only one conversation type. On average each session took about 45 minutes. At the end of the experiment the subjects were debriefed. They received a standard fee of 7.50 Dutch guilders, and an extra reward if they had managed to break the code (which only 5 of the dyads did).

Speech samples

As noted above, a summary of the instructions was recorded for all subjects. This was regarded as a sample of their 'base line speech'. At this phase of the experiment the subjects had not been speaking to their interlocutor, and, hence, were not influenced by the interlocutor's speech behaviour. After they had summarized the instructions, the members of a dyad engaged in a 20 minute conversation. The base-line speech samples (denoted as t0) and the complete 20 minutes of conversations were transcribed verbatim. Standard spelling was used and conversational characteristics such as pauses or interruptions were not transcribed.

Speech samples of about 60 to 90 seconds in length were taken from the first three minutes (t1) and the last three minutes (t2) for each participant. As was mentioned before, the two members in a dyad were recorded on separate input channels. Therefore, the editing of the speech samples was rather simple. The pauses on the input channel were cut out, and utterances in which there was some intermittant backgound noise were deleted. Thus, there are three speech samples for each subject: one before the conversation (t0), one at the beginning of the conversation (t1), and one at the end (t2). The speech samples (180 in total: 2 conversation types x 30 subjects x 3 samples) were copied onto high quality tape. Keeping the dyad structure intact, high and low status members were randomized. This tape is used for the analysis of one of the lexical variables (chapter 4), segmental variables (chapter 6) and the analysis of long term variables (chapter 7). For the analysis of discourse variables (chapter 5) the original (unedited) recordings of the conversations were used.

3.4 THE ANALYSIS OF DYADIC DATA: DEFINITION OF SPEECH STRATEGIES

In recent years, several papers have been published that deal with the statistical analysis of dyadic interactions. These papers demonstrate a vivid interest in the dynamics of social interaction (Jones 1986), and in bi-directional influences of the members in a dyad (Iacobucci and Wasserman 1988). Poole and McPhee (1985) give an overview of the methodology applied in interpersonal communication research. This overview is guided by the conviction that researchers should pay more attention to the linkage of theory and methodology. Justifications for methodological choices are often missing or inadequate. In this section some attention will be devoted to the linkage of theory and data analysis in this study. A central issue is the definition of the speech strategies in accommodation theory: convergence, divergence / non-accommodation and complementarity.

Several models have been proposed recently for the analysis of dyadic interaction (e.g. Poole and McPhee 1985; Iacobucci and Wasserman 1988; Griffin and Gardner 1989, Kenny 1990). The most useful model for the purpose of this study was developed in successive papers by Kenny (1988; 1990; Kenny and La Voie 1984). Kenny (1990) gives a classification of design types which can be applied in the study of interaction processes.

In the experiment described in section 3.3, each subject interacts with only one other. In every dyad the two persons are identified by one distinguishing characteristic: one subject has a high status, and the other has a low status. Both members of the dyad are subjects, and the data are two-sided (the responses of both members in a dyad are measured). In Kenny's classification scheme conversations are recorded in a standard design. Kenny (1990) illustrates the analysis

of research questions in the standard design with an example about interruptions in dialogue. Two of these research questions are particularly relevant: the reciprocity question (if one member of a dyad repeatedly interrupts the other, is that person interrupted by the partner?), and the status difference question (are high status subjects more likely to interrupt than low status subjects?).

The design applied in the experiment is in fact an extension of the basic standard design. Firstly, two conversation types are compared. Secondly, within both conversation types three groups are distinguished within both conversation types. Thirdly, speech material is analyzed at three points in time (t0, t1, t2). Kenny's recommendations for the statistical analyses, therefore, cannot be followed without some minor adaptations.

Definition of speech strategies: the reciprocity question

As was pointed out in section 2.2, there are several problems with respect to the definitions of convergence and divergence in accommodation theory. In this investigation these concepts are interpreted in terms of reciprocity and compensation (Patterson 1976; Cappella 1985). Both concepts are defined below. Reciprocity and compensation can be interpreted as special instances of the influence each member in a dyad exerts on the other. Defined thus, the principal aims of this research address questions of reciprocity and compensation (hypotheses 1 to 5). In the standard design, these questions can be measured by simply calculating the correlation coefficient (Kenny 1990). How exactly can the central speech strategies in accommodation theory be equated with the concepts of reciprocity and compensation?

If the reciprocity question is measured as correlation, this correlation may indicate one of two possible directions. A significant positive correlation indicates reciprocity which can be taken as convergence (Patterson 1976; Cappella 1985). A reciprocal relation indicates that an increase in the number of interruptions by one member of a dyad results in an increase in the number of interruptions by the other member. If the correlation coefficient is negative, this can be interpreted as compensation (Kenny 1990). An increase in the frequency of interruptions by one member of a dyad leads to a decreasing number of interruptions by the other member. In the accommodation model this could either indicate an instance of divergence or of 'complementarity'. This constitutes a conceptual problem because these strategies have very different meanings.

Kenny's interpretation of compensation differs from that of other researchers. At least two dimensions are involved in Patterson's (1976) definition of this concept. According to Patterson, compensation can be defined as an increase in the differences between two subjects on one dimension as a response to a decrease of the difference on another dimension. For example, an increase in proximity between interactants is often related to a decrease in eye contact. The general idea is that the interactants maintain a comfortable level of intimacy. Once this comfortable

level of intimacy has been established, changes in any dimension will require compensatory adjustments in some other dimension to maintain that level.

This general idea behind the concept of compensation is probably related more closely to the notions behind complementarity than to those behind the concept of divergence. Complementarity is a speech strategy in which individuals adapt to their fixed roles in an interaction, even if this role dictates speech divergence. The idea is that the participants in a complementary relation maintain an optimal sociolinguistic distance, which is psychologically acceptable and comfortable (Giles et al. 1987). This optimal sociolinguistic distance, therefore, can be taken as an indicator of a mutually established comfortable level of intimacy. Following this line of argument, whenever a correlation coefficient is negative, it will be interpreted in this study as an instance of complementarity.

Now, how can a divergent speech strategy be defined in terms of reciprocity and compensation? As was noted in section 2.2, a divergent strategy is defined as functionally equivalent to the concept of non-accommodation. This strategy can be measured conveniently: if a correlation coefficient is nonsignificant, the scores of the members in a dyad are unrelated. This indicates that there has been no mutual influence: non-accommodation.

This definition of speech strategies is in line with the most recent definition in the accommodation model (Coupland et al. 1988). This definition does not explicitly require participants in a dyad to match any obvious speech characteristic. It merely presumes that in accommodative talk a high degree of fit is achieved between the typically different but potentially attunable speech of the two members in a dyad. The general hypotheses in section 2.3 can be reformulated in terms of these new definitions (see for instance section 4.1).

Correlations or intraclass correlations?

A fundamental assumption in computing correlation coefficients to answer the reciprocity question is that the subjects in all dyads are identified by one single distinguishing characteristic. It must be obvious which subject's score in the correlation is to be taken as the X score and which as the Y score. At first sight, this is also the case in the present study, because in every dyad one member has a high status, and the other has a low status. However, hypothesis 1, for instance, simply holds that the speech of the two members in a dyad becomes more similar. Hypotheses 5 holds that high and low status subjects differ in the extent to which they accommodate their speech. A direction is not specified in either of these hypotheses, it is just hypothesized that there is a mutual influence from the members in a dyad. Therefore, the assumption that it is obvious which subject's scores are the X and Y variables in fact may not be valid.

In order to deal with this problem, an **intraclass correlation** can be computed. Kenny (1988) specifies the computation procedure, and states that this measure should be used more often by investigators of social relationships. The intraclass r is a function of two sources of variation in dyadic data: within-dyads, and

between-dyads. In terms of an analysis of variance the intraclass correlation can be computed if the mean square between-dyads (a), and the mean square within-dyads (b) are known. The intraclass correlation equals (a - b)/(a + b). Like ordinary correlation, the intraclass correlation ranges between -1 and +1: "It equals 1 when each dyad member has the same score and the dyad means differ. It equals -1 when the dyad means are the same for every dyad, but the scores vary within dyads, and so if one dyad member scores high the other scores low" (Kenny 1988: 61-62).

The intraclass correlation can be tested for significance by means of an F-test (Kenny 1988). If the intraclass r is positive F = a/b is computed. The numerator is assigned n-1 degrees of freedom, the denominator n. If the correlation is negative, b/a is computed and the degrees of freedom are n for the numerator and n-1 for the denominator (Kenny 1988). Because the test is two-sided the standard p values of F are divided in half. The associated degrees of freedom are 14 for the numerator and 15 for the denominator.

Kenny and La Voi (1984) have demonstrated that reciprocity scores in dyadic research are traditionally rather low. In order to avoid type I error in the testing of the hypotheses 1 to 4, the level of significance is set at 10%. The critical values of $F_{(14,15)}$ are 2.95 for $p < .05$, and 2.46 for $p < .10$. The critical values of $F_{(29,30)}$ are 2.09 for $p < .05$, and 1.85 for $p < .10$. Values of F are not reported here. Instead, levels of significance are indicated by means of asterisks. Throughout this study, the mean squares a and b were computed by means of the SPSSX 'reliability' procedure. The intraclass correlation and the associated F values were computed by means of a simple PASCAL program on a personal computer.

Analysis of central hypotheses

The analysis of reciprocity and compensation is somewhat more complex in the design applied in this study than it is in a plain standard design. As noted above, there are a few additional factors. First of all, two conversation types are compared. Secondly, there is more than one measurement point in time (t0, t1, t2). In order to cope with the first problem, the reciprocity question will be answered by calculating three sets of intraclass correlation coefficients: one for the total sample (including both conversation types), and two for both conversation types separately. In order to deal with the second problem, intraclass correlations were computed at three measurement points (at t0, t1, t2), which means that three 'snapshots' were taken. This solution to the problem of how to analyze processes of mutual influence over time is similar to the procedure followed by Gregory (1983; 1986).

How were hypotheses 1, 2, 3 and 4 tested? The fundamental assumption is that the mutual influence of the two members in a dyad results in a change of their speech characteristics over a given time domain. For all subjects mean scores were computed for several speech characteristics in three time intervals. At t0 the subjects in a dyad had had no contact, and, hence, there had been no opportunity for mutual influence to arise. Therefore it must be assumed that the scores of the

members in a dyad are unrelated: the intraclass correlation is zero. At t1 interaction had started and there was an opportunity for mutual influence to be established. If the subjects converge their speech patterns, reciprocity is expected at t1, because convergence is indicated by a significant positive intraclass correlation. If the speech of the members in a dyad becomes more similar as time proceeds (that is: if reciprocity is a function of time), the correlation coefficient can be expected to be higher at t2 than it is at t1.

It was argued above that the occurrence of compensation signals an attempt at speech complementarity. This speech behaviour is interpreted in accommodation theory as a strategy of convergence. This means that a significant positive intraclass correlation, as well as a negative correlation signify a convergent strategy. How, then, is the concept of divergence defined?

In the competitive conversations, as specified in the hypotheses, reciprocity is not expected to occur at any time. Of course the scores for the two members in a dyad in these conversations are also assumed to be unrelated at t0. As was noted in section 2.1, non-accommodation is regarded as functionally equivalent to divergence in accommodation theory. If the subjects do not accommodate their speech, this means there is no mutual influence of the members in a dyad. In this case the correlation coefficient will not be significant at t1 and t2 just as it is at t0.

Status difference question

The status difference question as it was formulated above is central to the testing of hypotheses 5 and 6. The issue is whether or not the subjects' status is related to the extent to which they accommodate their speech. Kenny's advice for the statistical analysis of this status difference question is to apply an analysis of variance with repeated measures.

The MANOVA design is rather complex. Independent variables are: conversation type (co-operative - competitive), status (high - low) and accent (standard - Nijmegen). In both conversation types three groups are distinguished according to their accent x status combination (see Figure 3.6). These groups are accounted for as blocks in a split-plot design. Thus, there are two between-subject factors: conversation type (2 levels) and group (3 levels). Status is treated as a within-block factor. Data are gathered over three time intervals, denoted as t0, t1, and t2. So next to the within-block variable status, there is one additional within-subject factor: time. Measures are repeated over both status and time. The Huynh-Feldt corrected significance values (Rogan, Kesselman and Mendoza 1979) for averaged univariate F-tests are reported, as is recommended for use with repeated measures designs. The level of significance is set at 5%.

This analysis of variance also shows main effects for conversation type, group, and time and for several interaction effects involving these factors. These effects are all discussed onder the heading of 'status difference questions'. If high and low status differ in the magnitude to which they accommodate their speech, (as is

specified in the status difference question) this results in a significant time x status interaction. If the two conversation types differ in this respect, this will emerge from the conversation type x time x status interaction. Effects of the accent factor emerge as interaction effects involving group and status. This interaction must be expected to be significant at t0 for those speech variables that relate directly to the accent of the subjects (see chapter 4).

3.5 THE COMMUNICATIVE SITUATION AND THE SPEECH MATERIAL

The speech material was recorded under restricted laboratory conditions. In the ideal case the situation in the experiment would be a close approximation of a normal communicative situation. Only in this case can the conclusions with regard to the speech accommodation be regarded as generally valid. As is the case in most everyday conversations, the subjects' contributions to the recorded conversations are spontaneous in the sense of being unplanned, and they are produced in real time in response to immediate situational demands (Stubbs 1983).

The experimental situation models a negotiation situation in which the participants aim at reaching a well described goal. In the co-operative conversation this goal is mutually shared by both conversationalists in a dyad. There are many situations like this in real life. One example for instance, would be a conversation in which two people exchange technical information on some electronic device, and both make sure they help the other as much as possible. In the competitive conversations, on the other hand, the two members in a dyad have different goals. An example of this situation would be buying and selling a house, where two parties negotiate about the price. In this section, some attention is devoted to the communicative situation, and to the speech recorded in the experiment. The subjects' perception of the experimental situation is discussed in chapter 8.

The communicative situation: some considerations

In many sociolinguistic investigations researchers have aimed at recording their subject's 'vernacular': that variety of language which is least self-conscious, which is unmonitored, and has the least attention paid to it. However, there arguably is no such thing as 'natural' speech in an absolute sense. All language is adapted to the situation at hand, and the situation where unconscious and unmonitored speech can be used is just one of a broad range of situations. Any of these situations may be an interesting object for research.

In the process of developing the task which was used in the experiments, an attempt was made to make sure that all stages were 'natural', and motivated by the

demands of preceding stages or following stages. The idea was that in normal situations people communicate for some purpose. Now let us assume for instance that the experimental task would have been to discuss the pro's and con's of a moral or social problem (abortion, death penalty, etc.). In this case subjects would have to discuss such a topic by means of microphones and headphones with an invisible interlocutor, and this would have been rather strange. Why would someone want to discuss their private opinions with a stranger in such a setting? In this case, features of the task and the situation are not in congruence with the topic of discussion. It is probable that the participants in the experiment would simply talk in order to satisfy the demands of the scientist. However, they would have consciously felt to have been involved in an experiment, and not in a normal communicative situation.

In the "Bank Robbers" game, on the other hand, it is essential that the conversation takes place through a kind of walkie-talkie, and that the interlocutor is invisible. If this were not the case, the task simply would not make sense. Task features and communicative situation are in congruence, and for this reason the subjects can become fully involved in a conversation in which they have a well-defined purpose. It can be argued that the experimental situation, according to this criterion, is 'natural', and that, therefore, the experimental situation is a good approximation of a normal conversation.

An 'objective' way to assess the spontaneity of conversations is to note the occurrence of para-linguistic noises such as coughs, sniffs, laughs, "um"'s and "erm"'s (Gregersen 1990). In general, the higher the frequency of these cues, the more probable it is that a speaker feels at ease, and hence, the more spontaneous his speech is likely to be. The frequency of these cues was counted in the first three and the final three minutes of the conversations.

Laughs occurred in all conversations at least three times for each subject. Clearing the throat, coughing, and sniffing was counted in 7 competitive and 9 co-operative conversations at least once for every subject. For these cues, arbitrarily, only those occurrences were taken into account that were produced during a speaker's turn. This means that the actual occurrence of these features is much higher than is indicated here, as they often occur on the back channel. The mean frequency of hesitation markers for each subject was 33. So although general independent criteria are not available, there is reason to assume that the subjects in the experiment produced fairly 'spontaneous' speech.

4 SOME ASPECTS OF LEXICALLY BASED ACCOMMODATION

4.0 INTRODUCTION

Accommodation in lexical variables has been investigated, among others, by Aronsson, Jöhnsson and Linell (1987) and by Levin and Lin (1988). Both studies were conducted in formal public settings. Aronsson et al. investigated the speech of lawyers and defendants in the courtroom. They found that defendants attenuate their colloquial jargons when they speak to judges and lawyers in court, and that legal professionals accommodate to the linguistic styles of individual defendants. Levin and Lin found evidence for convergence in the level of lexical formality of a witness and his questioners. These results can be interpreted as evidence for the validity of accommodation theory in real-life interaction.

Outside the domain of accommodation theory, Anderson and Garrod (1987) examined the mechanisms by means of which participants in a dialogue select referring expressions that correctly and unambiguously designate the intended reference. In their experiments subjects had to co-operate verbally in order to move position markers through the spatial network of a maze. The authors argue that the participants in a conversation tacitly negotiate local conventions regarding what is meant by what is said. This process takes place in the early stages of a dialogue. Speakers and recipients work together in establishing a definitive reference.

Similar results were obtained by Clark and Wilkes-Gibbs (1986), who instructed pairs of subjects to match two series of tangram pictures. Each tangram picture could be interpreted and described in several ways. One of the subjects held the pictures in a pre-specified order. The second had to sort out his pictures in the specified order, guided by the description of his interlocutor. The procedure was repeated over a series of trials. The results demonstrate that the descriptions given for individual pictures were abbreviated over trials. For instance a description such as **"looks like a person who's ice skating, except they're sticking two arms out in front"** in the initial trial was abbreviated to **"the ice skater"** in the final trial. Participants were found to repair, expand or replace a description until a final version was mutually accepted.

In the general sender-message-receiver model of information transfer, every message has a certain form and certain characteristics, which are independent of the receiver. For example, when a cell transmits a specific hormone to a second cell, this chemical substance will induce a fixed response. In the context of communication between humans, this model of information transfer has been criticized in recent years (e.g. Jones 1986; Krauss 1987; Graumann and Hermann 1988; Schober and Clark 1989). Schober and Clark (1989) compared this 'autonomous' model of information transfer to what they call a 'collaborative' model. In this alternative model, sender and receiver collaborate, continually making sure that there is mutual understanding. This process is called **'grounding'**.

In a collaborative model of information transfer, receiver and sender share responsibilities in the communicative situation. Abbreviating complex descriptions,

for instance, enhances communicational efficiency, which is a shared interest for both participants. The grounding principle leads to the prediction that an 'overhearer' (Bell 1984) who is not involved in the conversation will perform worse in a matching task such as the one used in the Clark and Wilkes-Gibbs experiment than the original interlocutors did. This prediction was confirmed experimentally by Schober and Clark (1989). Schober and Clark conclude that accommodation theory does not offer an acceptable explanation for this result, as the theory cannot account for the fact that an overhearer is worse at performing in the matching task than the interlocutor.

Schober and Clark's (1989) conclusion seems to contradict Aronsson et al. (1987) and Levin and Lin (1988), who both found that the accommodation model is valid in real life interaction. However, in the CAT framework it is accepted that convergent and divergent speech shifts can be the result of several motives, one of which is communicative efficiency (see section 2.1.2). From the results of Schober and Clark's experiments it cannot be concluded that lexical accommodation always results out of motives of conversational efficiency only. Conversely, if one accepts that lexical accommodation in the Aronsson study is caused by social motives, this does not imply that lexical accommodation must always be explained by social motives only.

In this chapter attention is focussed on lexical accommodation in co-operative and competitive conversations. In both conversation types the participants in a dyad will profit from abbreviating complex descriptions (Schober and Clark 1989), and from adopting a shared set of local semantic conventions (Anderson and Garrod 1987). So if accommodation is caused by motives of communicative efficiency only, it is highly probable that lexical accommodation occurs in both co-operative and competitive conversations.

The fundamental question in this chapter is whether or not accommodation in lexical variables does indeed occur in both conversation types. In addition, the accommodative behaviour of high and low status subjects is compared. Specific hypotheses are given below. These are reformulated in line with the operationalization of the central speech strategies which was discussed in section 3.4.

1) In co-operative conversations a high degree of fit at the lexical level will be achieved, which will be reflected in reciprocity in the use of lexical items.

2) In competitive conversations a high degree of fit at the lexical level will not be achieved, and there will be no reciprocity or compensation in the use of lexical items.

3) If two members in a dyad achieve a high degree of fit at the lexical level, reciprocity increases as time proceeds.

4) If two members in a dyad do not achieve a high degree of fit at the lexical level, reciprocity or compensation will not be established as time proceeds.

5) High and low status subjects differ in the extent to which they accommodate their speech.

Effects of the independent variables conversation type, group, and accent on the use of lexical items are discussed in addition to the general hypotheses in order to gain greater insight into the success or failure of the experimental manipulation of these variables. Accommodation is investigated with respect to three Dutch function words (see section 4.1 for the selection of variables). These function words have variants which differ on a formal-colloquial and a standard-substandard dimension. Therefore, differences on this dimension between the standard accented and Nijmegen accented subjects will be investigated. The hypothesis is that:

6) Standard accented and Nijmegen accented subjects differ on a standard-substandard dimension for the lexical variables under study.

In the next section (4.1), the procedure used to select lexical variables is described. The analysis of the selected variable is discussed in section 4.2, and in section 4.3 results are presented. Throughout this section, central statistical analyses (which were introduced in section 3.4) are presented in detail. Similar analyses are used in later chapters, where they are discussed less explicitly. The results are discussed in section 4.4.

4.1 SELECTION OF LEXICAL VARIABLES

It would be interesting to test the hypotheses listed above by investigating a number of lexical contrasts which occur frequently in all dyads. Unfortunately, the conversations are rather 'poor' from a semantic point of view. As pointed out in chapter 3, the topic of the conversations was rather restricted. The participants discuss the arrangement of tangram pieces in a two-dimensional space. These tangram pieces are generally referred to by fixed, conventional names, and so are spatial references (left, right, upside down etc.). Lexical variation occurs only in case a subject does not know (or prefers not to use) the conventional reference term.

Interesting cases of lexical variation often occur incidentally in one dyad only. For example, in one of the co-operative dyads a subject introduced the Dutch word **"diagonaal"** (English: diagonal) incorrectly as **"diogonaal"**. This was immediately

adopted by the interlocutor, and as a result the correct form does not appear anywhere during this conversation. However, the alternative form "diogonaal" occurs in only one conversation. In all others the correct lexical item is used. Hence, it does not make sense to investigate this opposition statistically in all dyads.

Listening to the recordings of the conversations and studying the transliterations revealed that only one lexical opposition occurred in most conversations. Apparently, there was some uncertainty about the conventional denotation for one of the tangram pieces: the parallelogram. In 11 of the 15 competitive conversations, and in all co-operative conversations this object is referred to at least once. There is considerable variation in the references used for this object: 17 different words occurred during the conversations. These include: **'parallelogram', 'ruit', 'drop', 'wiebert', 'trapezium'**. Several different reference terms were used during 26 conversations.

So the denotations of the parallelogram would constitute an interesting variable. However, the testing of hypotheses 3 and 4 requires that a variable occurs at t0, at t1 and at t2 with a sufficiently high frequency. This is not the case for this variable: the parallelogram is not referred to in any of the samples at t_0, and it is only used occasionally at the other two measurement points. Only when the conversations are looked at in their entirety does it become clear that the obect is referred to at least a few times in most conversations. In addition, hypothesis 3 cannot be tested, as it would be impossible to assess an extent of accommodation for this nominal variable. Still, with respect to hypotheses 1 and 2 it could be instructive to look at this variable in some detail.

Table 4.1 contains frequency data on the references made to the parallelogram in both conversation types. There are no mutually shared references in 8 of the 30 cases. It may be interesting to note that in only 12 conversations the reference that both members in a dyad agree on is the conventional denotation 'parallelogram'.

Table 4.1 References to the parallelogram in 15 competitive and 15 co-operative conversations

	convers. ref. mutually shared	convers. ref. not mutually shared	
competitive	8	7	15
co-operative	14	1	15
total	22	8	30

Chi square = 6.01; df = 1; p < .02

The question is whether or not the two variables (conversation type and reference) are independent. This can be tested by means of a chi square test. Expected values are obtained using the multiplication theorem of probability (Ferguson and Tanake 1989). The resulting value for chi square is significant at the $p < .02$ level. From these results it can be concluded that the subjects converged in this lexical variable in the co-operative conversations, but not in the competitive conversations.

To sum up, the discussion regarding the selection of a lexical variable demonstrates that in order for it to be useful in testing all the hypotheses listed in the previous section, a variable must meet several criteria. First, it must occur at t0, t1, and t2 with a sufficiently high frequency. Second, of course, it must be a true variable in the sense that it varies both within and between dyads. Finding lexical variables that meet these criteria constitutes a serious problem.

There is a finite class of function words which occur in Dutch discourse in two phonological variants. The standard Dutch items "wat", "dat", and "niet" (English "what"/'which", "that"/'which", and "not") are often realized in colloquial and in sub-standard Dutch as "wa", "da", and "nie"[2]. The two variants of each pair range on a standard-substandard dimension and on a formal-colloquial dimension. The opposition "wat"-"wa", "dat"-"da" and "niet"-"nie" is not an instance of rule governed t-deletion. Dutch speakers can be observed to use the colloquial or sub-standard items in several syntactical and phonological contexts. The opposition can be defined as lexically based phonological variation as its nature is not truly lexical, and not exclusively phonological.

Both members of a pair have the same meaning and syntactic properties. Dutch speakers are familiar with both members of a pair. Because the speech samples of the individual subjects have a maximum duration of about 90 seconds each, problems may arise with regard to the frequency of occurrence of the item. Combined into one variable these items can be expected to occur with a sufficiently high frequency.

It can be argued that if a subject were to shift from the systematic use of one member of the pairs "wat"-"wa", "dat"-"da" or "niet"-"nie" at to, to a preference for the alternative form at t1 or t2, this cannot be explained by, for instance, motives of communicative efficiency or perhaps by adhering to rules for appropriate social conduct. However, as indicated above, the nature of the opposition is not truly lexical. But as there are no better alternatives available in the speech material, it was decided to investigate lexically based accommodation processes because they occur in this finite class of lexical items.

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[2]In some southern dialects there are two other items that are realised without final [t]: "dit" (this) and "met" (with). However, the sub-standard forms of these lexical items were not present in the speech material.

The lexical items (wat), (dat), and (niet) were rated for the presence of word final (t) for all subjects in three speech samples: the base-line speech at t0, the first three minutes of the conversations (t1), and the final three minutes (t2). The rating process was divided into three successive stages:

- determining the relevant linguistic contexts,
- marking all occurrences of the variables in the transliterations,
- rating and coding of the variants.

These stages are briefly commented on below. In addition, data are presented on the frequency of occurrence of these lexical items in the speech samples.

Selecting linguistic contexts

The lexical items were rated in all linguistic contexts except one. Occurrences that were followed by a lexical item which has either (d) or (t) as word initial segment were excluded from the analyses.

Marking all occurrences in the transliterations

All occurrences of the variables in appropriate contexts were capitalized in the transliterations (see section 3.4) by means of a simple PASCAL program on a personal computer. The aim of this procedure was to make sure that none of the occurrences would be missed.

Rating and coding of the variables

The complete material was rated twice by the same rater. The two ratings were separated by a period of three months. A decision was made on instances for which the two ratings disagreed by listening to the speech material a third time. Values were assigned to the transcribed items. The procedure was straightforward. Instances of the variables in which the final (t) was present were assigned the value 1, otherwise the value 0 was assigned. As the variants of each pair all range on a formal-colloquial or standard-substandard dimension, mean scores were computed over the three lexical items. The values assigned to all items in a sample were simply added up, and divided by the total frequency of these variables in the sample. Note that the minimum index score equals 0 (all sub-standard variants), and the maximum equals 1 (all standard variants).

The mean frequency of occurrence for the variables in the three samples is presented in the first column of Table 4.2. Inspection of the frequency data (not included in this table) reveals that the frequency is 1 in two of the samples at t0. In all other samples the frequency ranges between 2 and 26. In general, the frequency is lower at t0 than it is at t1 or t2. The mean frequency over all samples is 8.25. In general, this implies that the frequency of the variables can be considered sufficiently high for most statistical purposes.

Table 4.2 Mean frequency of occurrence of the lexical variables in three measurements for the total sample, and mean index scores for Nijmegen-accented and standard-accented subjects

sample	mean freq. of occurrence (n=60)	Nijm. accent mean score (n=20)	Standard accent mean score (n=40)
t0	5.16	.75	.89
t1	9.85	.49	.71
t2	9.75	.41	.70
mean	8.25	.55	.77

In order to give a general impression of the ratings, Table 4.2 also contains the mean index scores for standard-accented and Nijmegen-accented subjects. This table suggests that Nijmegen-accented subjects used more sub-standard variants than did the standard-accented subjects. This effect will be tested for statistical significance in the next section (4.3).

4.3 RESULTS

The reciprocity question

In order to test hypotheses 1 to 4, intraclass correlations were computed for the total sample, and separately for co-operative and competitive conversations. Intraclass correlations were computed for t0, t1, t2. See section 3.5 for the rationale behind this analysis. A computational example of intraclass r for the speech samples at t2 in the co-operative dyads is presented below.

As was noted in section 3.5, the intraclass correlation is a function of the mean square between dyads (a) and the mean square within dyads (b). The function is: Intraclass r = (a - b)/(a + b). For the speech samples in the co-operative dyads at t2, a = 0.1297, and b = 0.0401, so this intraclass r = 0.528. This correlation can be tested for statistical significance by means of an F test (see section 3.5). In this example the intraclass r is positive, so F is computed as a/b and F equals 3.23. The associated degrees of freedom are 14 for the numerator and 15 for the denominator. The critical values of $F_{(14,15)}$ are 2.95 for $p < .05$ and 2.46 for $p < .10$. The F value of 3.23 in this example is statistically significant at the .05 level. The intraclass correlations for the lexical index scores are presented in Table 4.3.

In section 3.5 the assumption was discussed that the speech of the two members in a dyad is independent at t_0. As Table 4.3 demonstrates, this assumption is valid for the total sample as well as for the two conversation types separately. None of the intraclass correlations at this measurement point were significant.

Table 4.3 Intraclass correlations for the lexical index scores for total sample, competitive and co-operative conversations

sample	TOTAL (d=30)	COMPETITIVE (d=15)	CO-OPERATIVE (d=15)
t0	.08	-.13	.20
t1	-.19	.12	-.45*
t2	.24	-.09	.53**

* p < .10; ** p < .05; d = dyads

In the co-operative conversations a high degree of fit at the lexical level is reflected in reciprocity in the use of lexical items. The correlation coefficient increases as time proceeds in these conversations. Note that the direction of the correlation changes between t1 and t2. At t1 the correlation between the members in a dyad is significant ($p < .10$) and takes a negative, compensatory direction. This indicates a complementary relation between the members in a dyad at this point in time. This relation, however, changes in the course of the conversation. At t2 the correlation coefficient is positive, and significant at the .05 level. These results suggest that the reciprocity between the two members in a dyad increased during the course of the co-operative conversations.

There is neither reciprocity nor compensation in the competitive conversations. The intraclass correlation suggests that there is no mutual influence of the members in a dyad. The intraclass r coefficient does not reach significance at any measurement point in time. This indicates that the members of the dyads in these conversations do not accommodate for this variable.

The status difference question

In order to investigate hypotheses 5 to 7, an analysis of variance was computed by means of the SPSS procedure MANOVA. As was stated in section 3.5 there are two within-subject factors in this analysis: time (t0, t1, t2) and status (high and low). Measures were repeated over both factors. There are two between-subject factors: conversation type (co-operative and competitive) and group (groups 1 to 3) (see Figure 2.3.1 for a summary of the experimental design). For the lexical index scores, the univariate tests for homogeneity of variance for all cells were not significant. Between-subject and within-subject effects are discussed below.

Between-subjects effects

The between-subject factor conversation type had no significant effect on the lexical index score, whereas the independent variable group did. The tests of significance for these effects are given in Table 4.4. As is apparent from this table, co-operative and competitive conversations do not differ with regard to the mean scores on the lexical variable. This implies that the two conversation types in general did not differ with respect to the use of the colloquial or formal variants of the lexical items under study. Both variants ocurred in both conversation types in about the same proportion.

Table 4.4 Tests of between-subjects effects conversation type and group for lexical index scores

	SS	DF	MS	F	p
within cells	2.57	24	.11		
convers. type	.00	1	.00	.01	.934
group	.94	2	.47	4.37	.024
convers. type by group	.31	2	.16	1.46	.252

Table 4.4 also demonstrates that a significant group effect was obtained. This effect is probably due to the difference between group 1 and the two other groups. The mean scores for the three groups are .60, .77 and .72 respectively. Apparently the mean score in group 1 (the group in which dialect and assigned status are in congruence), is lower than the mean scores in group 2 (all standard subjects) and group 3 (in which dialect and status contradict each other).

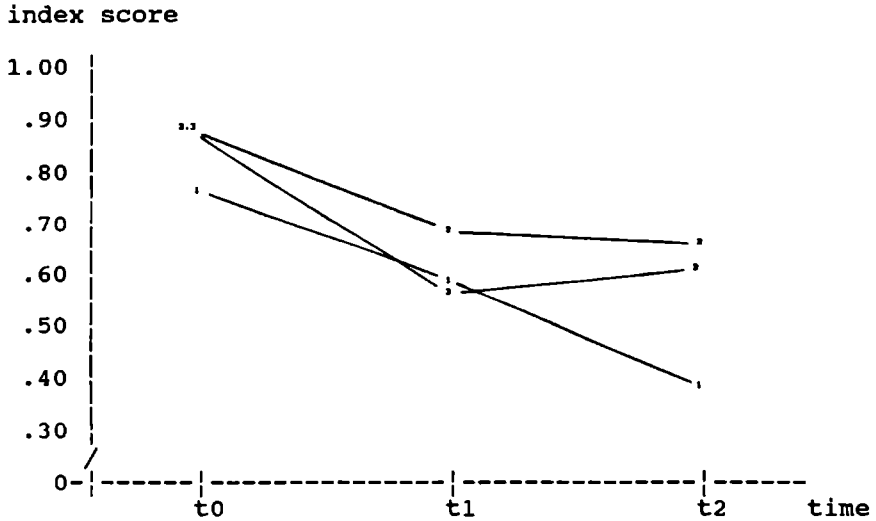
Within-subject effects

Table 4.5 contains the averaged tests of significance for the time effect. A significant main effect for time occurred, as this table demonstrates. Inspection of the mean scores at the three time points reveals that the mean of the scores at t0 (.85) is higher than the scores at the two other measurement points in time (.63 and .60). Obviously, in the summaries of the instructions the relative frequency of standard items was higher than during the conversation.

Table 4.5 Averaged tests of significance involving the time effect for lexical index scores

	SS	DF	MS	F	p
within cells	1.53	48	.03		
time	2.17	2	1.08	34.03	.000
conversation type by time	.14	2	.02	2.12	.131
group by time	.46	4	.11	3.58	.012
conv.type by group by time	.03	4	.01	.23	.918

Figure 4.1 Interaction between group and time for lexical index scores



Also, the group by time interaction effect turned out to be significant. This interaction, which is difficult to interpret, is illustrated in Figure 4.1. As this figure demonstrates, the score for group 1 at t2 is lower than the scores for both other groups at this measurement point. The difference between group 1 and both other groups at t2 is rather large in comparison to the other differences between two pairs of means at t0 or t1. This means that the subjects in group 1 tend to shift more towards the colloquial or sub-standard end of the index score in the course of the conversation than the other two groups do.

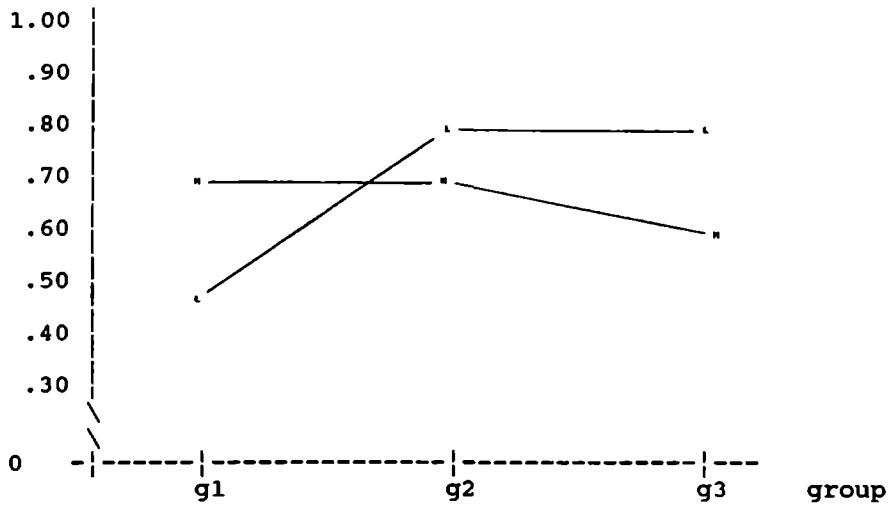
Table 4.6 contains the tests involving the status effect. As this table demonstrates, no significant main effect occurred of status. High and low status subjects did not differ with regard to the extent to which they used the colloquial or sub-standard forms of the lexical items under investigation. Neither the conversation type by status, nor the conversation type by group by status interactions were significant. However, a significant interaction was obtained between group and status. The interaction is illustrated in Figure 4.2.

Table 4.6 Tests of significance involving the status effect for lexical index scores

	SS	DF	MS	F	p
within cells	2.06	24	.09		
status	.01	1	.01	.08	.784
conversation type by status	.03	1	.32	.32	.567
group by status	1.48	2	.74	8.61	.002
conv.type by group by status	.05	2	.02	.27	.766

As Figure 4.2 demonstrates, the scores for high status subjects are closer to the standard end of the index score in group 1. In both other groups this is reversed: low status subjects use more standard forms than high status subjects do. In group 1 only the high status speakers were judged as speakers of standard Dutch, in group 2 both members of a dyad were judged as speakers of standard Dutch. The scores for high and low status subjects on a standard-substandard dimension are not expected to differ. Figure 4.2 illustrates that the difference between high and low status subjects in this group is indeed smaller than in both other groups. In group 3, high status subjects speak Nijmegen accented Dutch, and low status subjects in this group speak standard Dutch. Figure 4.2 demonstrates that the pre-experimental accent ratings are clearly reflected in the group by status interaction.

Figure 4.2 Interaction between status and group for lexical index scores



This group by status interaction suggests that Nijmegen accented subjects and standard accented subjects differed with regard to the frequency of use of the colloquial or sub-standard form of the lexical items under study. This difference was already emerging from an inspection of the mean scores for both groups given in Table 4.2. As noted in section 3.5, the independent variable accent is represented in the analysis of variance in the group by status interaction.

Table 4.7 Tests involving the time by status effect for lexical index scores

	SS	DF	MS	F	p
within cells	1.28	48	.03		
time by status	.03	2	.02	.62	.543
conv. type by time by status	.05	2	.03	.95	.394
group by time by status	.15	4	.04	1.41	.244
conv. type by group by time by status	.21	4	.05	1.99	.111

Tests involving the time by status within-subject effects are summarized in Table 4.7. None of the interaction effects proved to be significant. If high and low status

subjects differ in the extent to which they shift their speech, this would become obvious in a significant time by status interaction, or perhaps in a group by time by status interaction. This turned out not to be the case. So with regard to the lexical variable under study high and low status subjects do not differ in the extent to which they shift their speech. As Table 4.7 demonstrates this holds for all groups in both conversation types.

4.4 DISCUSSION AND CONCLUSIONS

Six hypotheses were formulated in the introduction to this chapter. Hypotheses 1 to 4 refer to what has been termed the reciprocity question. These hypotheses were all confirmed. The analysis of the reference terms used to denote one of the tangram pieces, the paralellogram, demonstrated that the dyads in the co-operative conversations converged when using reference terms, and that the dyads in the competitive conversations did not. The analysis of the lexically based phonological variable revealed that in co-operative conversations members in a dyad converge as well. The reciprocity between high and low status subjects in the use of standard or sub-standard variants of this variable increased over time. In competitive conversations this was not the case: the scores of two members in a dyad are independent at all three measurement points in time. In these dyads the subjects did not accommodate in the use of the standard and substandard variants of these lexical items.

These results demonstrate lexically based accommodation processes in normal dialogue. It can be argued that these processes cannot be explained by pointing exclusively to underlying cognitive motives or to motives of conversational efficiency only. Communicative efficiency is a shared interest for the dyads in both conversation types. However, only the co-operative dyads were found to converge with respect to the denotations of the parallelogram, and accommodation in the function words under study is also restricted to the co-operative dyads. Both variants of these items have the same cognitive meaning and can be considered as equally efficient in communication.

The grounding process, which Schober and Clark (1989) interpret as the driving force behind lexical accommodation, can be seen as a co-operative cognitive strategy. From moment to moment speakers make sure that there is mutual understanding. However, this process does not come about automatically as it appears to be more prominent in the co-operative conversations. So apart from cognitive factors there are motivational or attitudional factors involved in the grounding process as well.

Two additional hypotheses refer to what has been termed the status difference question. Hypotheses 5 was rejected. High and low status subjects do not differ in

the magnitude to which they accommodate their speech. The mean differences between high and low status subjects are not significant, and do not change over time. As the time factor was significant (the mean score for the lexically based variable decreased over time) this indicates that the shifts toward reciprocity in the co-operative conversations are rather small.

Hypothesis 6 was formulated in order to test an aspect of the experimental set-up: the assignment of Nijmegen-accented and standard-accented subjects to the conversation types. Nijmegen-accented and standard-accented subjects apparently differed with respect to their mean index scores on a standard- substandard dimension. It is no surprise that the Nijmegen-accented subjects used more substandard forms. This difference emerged before the conversations, and remained unaltered within the conversations.

The analyses showed that no differences occurred with respect to the mean scores over the two conversation types. Apparently standard-accented and Nijmegen-accented subjects were divided at random over the two conversation types. It did not turn out to be the case that the competitive conversations were characterized by a higher frequency of formal or standard lexical items.

5 ACCOMMODATION AND DISCOURSE MANAGEMENT STRATEGIES

5.0 INTRODUCTION

The analysis of spoken discourse has long been one of the major issues of interest in sociolinguistics (Dittmar 1978). Discourse analysis is concerned with language in its social context and in particular with interaction or dialogue between speakers. The analysis of spoken discourse attempts to study the organization of language on a level above the sentence or the clause level. In particular, it attempts to study conversational exchanges (Stubbs 1985). In the 1988 update of accommodation theory discourse management strategies were attributed a prominent status also. As Coupland et al. (1988: 27) argue, the discourse management component is the "most central sociolinguistic category through which interpersonal accommodation is realized". However, evidence for accommodation processes at the discourse level is rather limited.

During the late sixties and early seventies Welkowitz and Feldstein and others analyzed temporal speech patterns in interactions (e.g. Welkowitz and Feldstein 1969, Welkowitz and Kuc 1973). Welkowitz and Feldstein (1969) report on an experiment which attempts to evaluate the effect of differences in perceived similarity upon the time patterns of dyadic interaction. Interactions in 40 same sex dyads were recorded on three separate occasions in time. The speech material was analyzed with respect to three discourse variables: vocalization length, pauses within turns, and pauses between turns. The results show that the subjects tend to converge for vocalization length and pauses between turns. Convergence, defined as decreasing within-dyad differences, was measured by means of t-tests. Correlation coefficients which indicate the between-speaker reciprocity for all variables on all occasions range from .22 to .58, and are statistically significant in a few cases only.

Within the theoretical framework of CAT, Bilous and Krauss (1988) explored accommodation processes at the discourse level in same sex and mixed sex dyads. Their research included the variables: **interruptions, listener back channel responses, short pauses within turns, long pauses within turns, speech productivity,** and **laughter.** The measurement unit for all variables was the frequency of occurrence. An exception, of course, is speech productivity, which was measured by counting the total number of words produced. Accommodation was defined as systematic variation in response to dyad composition (same sex or mixed sex). Similar to Welkowitz and Feldstein (1969), convergence and divergence were measured between occasions by means of t-tests. The subjects' speech in same sex dyads was compared to their performance in mixed sex dyads. In mixed sex dyads male and female subjects were found to converge on some indices, diverge on others, and show no change on the remaining ones.

In the experiment described in chapter 3, antecedents were created for two types of conversations: co-operative and competitive. Crombag (1966) found that subjects produced more 'communication units' (defined as a simple sentence expressing a complete simple thought) in co-operative settings than in competitive settings. Trimboli and Walker (1984) demonstrated that co-operative and competitive conversations differ with respect to several other discourse features such as the number of turns, frequency of interruptions, and the frequency of smooth turn transitions. Apparently the two conversation types are organized differently, and subjects display different communicative behaviour.

The first question that will be raised in this chapter is whether or not the two conversation types recorded in the experiment differ on the discourse level. If subjects in co-operative and competitive conversations do indeed display different communicative behaviour, the question is whether these differences emerge with respect to accommodation processes as well. The discourse analysis, of course, is restricted to the actual conversations. At t0 there is no interaction or dialogue whatsoever as the subjects just repeat the instructions. The conversations can be characterized as content-focussed (Hardeveld, Foolen and Springorum 1980). Both participants in a dyad are mutually aware of each other's purpose in the conversation. The reciprocity hypotheses are as follows:

1) In co-operative conversations, a high degree of fit at the discourse level will be achieved, which is reflected in reciprocity in a number of discourse features.

2) In competitive conversations, a high degree of fit at the discourse level will not be achieved and there will be no reciprocity or compensation in any discourse feature.

3) If two members in a dyad achieve a high degree of fit at the discourse level, reciprocity increases as time proceeds.

4) If two members in a dyad do not achieve a high degree of fit at the discourse level, reciprocity or compensation will not be established as time proceeds.

Next, the status difference question is explored. Coupland et al. (1988) suggest that the status of the participants in a conversation will influence the extent to which they dominate the topic of the discourse. Other discourse variables in the past have been related to status or conversational dominance as well (see section 5.1). We will test the status difference hypothesis that:

5) High and low status subjects differ in the extent to which they accommodate their speech.

These hypotheses will be tested by analyzing a number of discourse variables. The selection of these variables is commented on in the next section (5.1). An overview of the variables included in related studies is presented, and based on this overview variables are selected for the purposes of this research. These variables must discriminate between the two conversation types, between high and low status speakers, and should help to throw light on processes of accommodation. Next, differences between co-operative and competitive conversations are investigated for these discourse variables. A quantitative approach (as opposed to an interpretative approach, Levinson 1983) is taken in this study. Results are presented in section 5.2 and discussed in section 5.3.

5.1 SELECTION OF DISCOURSE VARIABLES

Three channels of communication at the auditory - vocal level were distinguished in chapter 1 after Ellis and Beattie (1986). Variables that have been included in research into the organization of discourse are either verbal, prosodic, or paralinguistic in nature. So an interesting question arises as to which central feature the discourse variables have in common. No attempt is made here to find a universally valid answer to this question. However, the discourse variables investigated in this study all reflect the mutual interdependence of the participants in a conversation. Typically, discourse variables are restricted in their magnitude or their frequency as a result of the collaborative behaviour of all participants in a conversation.

Imagine for example a subject who tries to describe the place where a tangram piece should be positioned, and who needs a lot of conceptual planning in doing so. Many silent pauses may occur within his turn, and the co-operative interlocutor may decide during any of these pauses to help the speaker by asking a question. In this case the length of the pause within the first speaker's turn is restricted by the other participant who starts a new turn, and the interpretation of the pause changes. What could have been a pause within the first speaker's turn has become a turn transition pause.

Experimental research into the differences between co-operative and competitive conversations is scarce. Crombag (1966) compared co-operative and competitive conversations for a range of variables including the dimension of 'communication units'. The discourse variables included in Trimboli and Walker (1984) are listed in Table 5.1. This table also contains the mean values for these variables in the two conversation types, and the measurement unit (seconds or frequency). Except for turn taking pauses, all variables yielded significant differences.

Table 5.1 Discourse variables included in Trimboli and Walker (1984) and mean values for co-operative and competitive conversations for significantly differing variables

variable	unit	co-operative (mean)	competitive (mean)
number of turns	frequency	12.4	22.9
turn taking pauses	seconds		
interruptions	1) frequency	4.6	26.1
	2) seconds	0.64	0.84
back channel cues	frequency	10.3	1.9
tempo	words/minute	202	236
pauses within turns	seconds	0.48	0.36
smooth turn transit.	frequency	2.7	4.6

As Table 5.1 demonstrates, Trimboli and Walker (1984) found more and longer interruptions, less back channel cues, more turns, more fluent turn transitions, and shorter pauses within turns in competitive conversations. Also, as opposed to the co-operative conversations, in competitive conversations the subjects' speech rate was higher. The variables included in their research cover a range of potential indicators of conversation type.

Discourse variables and status

Although their results are somewhat indecisive, Bilous and Krauss (1988) also offer a valuable list of potentionally relevant variables. The variables included in their research were already listed in the introduction to this chapter. Three of these variables (interruptions, back channel cues, and speech productivity), have been related to dominance in male-female dyads. Zimmerman and West (1975) found that males interrupted females more than females interrupted males. Argyle, Lalljee and Cook (1968) found that males speak more than females, and produce less back channel cues. Furthermore, high status speakers may perhaps tend to dominate the topic of a conversation (Coupland et al. 1988).

Bilous and Krauss (1988) interpreted these findings in the light of the male dominance in society as a whole. However, they found no evidence in favour of what has been called the 'male dominance hypothesis'. There is probably no straightforward systematic relation between vocal parameters and dominance. As Beattie (1981: 33) notes, "Different categories of interruptions are affected by different variables, and only some seem to be related to variables which might be thought to reflect dominance (however defined)". Nevertheless, as interruptions, back channel cues, measures of speech productivity, and topic changes have been related to dominance in some research at least, they may also turn out to be a reflection of the status of the participants in our experiments. It might be

worthwhile, therefore, to include these variables.

Variables selected

The selection of variables was guided mainly by Trimboli and Walker's (1984) results. Their list of variables includes two variables which were investigated by Welkowitz and Feldstein (1969) (pauses within turns and turn taking pauses), and three which were investigated by Bilous and Krauss (1988) (interruptions, back channel behaviour, and speech productivity). In addition, their selection of variables suggests two more interesting variables: number of turns, and turn taking pauses. The following variables were selected:

- **number of turns,**
- **long turn taking pauses,**
- **interruptions,**
- **back channel cues,**
- **long pauses within turns,**
- **words per turn,**
- **number of topic changes.**

The variables 'tempo' and 'smooth turn transitions', both included in Trimboli and Walker's list, have not been included in this list. Tempo arguably is not a true discourse variable because it is not directly restricted by the contribution of all participants in a conversation. Articulation rate will be discussed in the chapter on prosodic and paralinguistic variables. Smooth turn transitions are not included as the selection already includes two other variables concerned with turn taking mechanisms: pauses between turns, and interruptions. In addition to Trimboli and Walker's list of variables one more variable is included that is potentially related to status: the number of words per turn and the number of topic changes. The variables are defined below.

Definition of the selected variables

As was already pointed out, two parts of the conversation were analyzed: the first three minutes and the final three minutes. These two samples are referred to as t1 and t2. Note that, as the complete conversations take 20 minutes each, t1 and t2 are separated by 14 minutes of conversation. The measurement unit for all variables is the frequency of occurrence (per speaker per three minutes of conversation), except for the number of words per turn. Two of the variables, long turn-taking pauses and number of turns, are regarded as conversation characteristics of dyads as a whole (see the definition of the variables below). These variables cannot be attributed to single members in a dyad. The other variables are calculated separately for both participants in a dyad. The discourse variables are defined as follows:

Number of turns
A turn is defined as the speech of one participant until the other participant starts to speak (Fries 1952). Back channel cues (see below) are not counted as turns. Hence, one single speaking turn may be accompanied by several back channel cues. Thus defined, the difference between the number of turns for both participants in a dyad is either 0 or 1 (depending on whether the number of turns is even or uneven). Therefore, it makes no sense to distinguish between the members in a dyad with respect to this variable.

Long turn-taking pauses
Long turn-taking pauses are arbitrarily defined as all silences between turns which are longer than two seconds. As was mentioned before, turn-taking pauses are interpreted as a conversation characteristic. At the end of his turn either the current speaker starts a new turn, or the interlocutor takes over. It is possible for both to start a new turn, the two members in the dyad can be held equally responsible for a turn-taking pause. Therefore, it can be argued that it does not make sense to attribute a turn-taking pause to the speaker starting the next turn.

Interruptions
Interruptions are defined as overlaps in speaking turns. Whenever a member of a dyad starts to speak before the other member has completed his turn, this is regarded as an interruption. Not included are overlaps that result from back channel cues (see below), or simultaneous starts. We are aware that this definition of interruptions is a very crude one. Roger, Bull and Smith (1988) distinguish 17 types of interruption, and Beattie (1981), distinguishes four types. Three of these are taken together here, and one of these is not included in this definition: the 'silent interruptions' in which a speaker takes the turn when a pause occurs within the turn of the current speaker.

Back channel cues
Back channel cues are (usually short) signals indicating a listener's attention by phrases such as for instance "mm-hmm", "yeah", "OK". Although they frequently overlap the current speaker's turn, they are not considered as interruptions (see above), because they generally signal attention and comprehension (Beattie 1981; Trimboli and Walker 1984; Bilous and Krauss 1988).

Long pauses within turns
Long pauses within turns are defined as all silences which are longer than two seconds within a speaker's turn (Bilous and Krauss 1988).

Words per turn
The mean length of turns is defined as the quotient of the total number of words uttered by a member of a dyad and his number of turns (see above).

Topic changes
The topics of the discourse in the experiment are limited. The interlocutors discuss the code, the part of the code that speaker A or speaker B possess, the left or the right part of the code, and they occasionally comment on the task or the environment. A topic shift is defined as a shift from one of these topics to another.

5.2 RESULTS

In this section the differences between co-operative and competitive conversations are explored first. Next, processes of accommodation in unequal status dyads are investigated.

Characteristics of co-operative and competitive conversations

In order to find out whether or not the co-operative and the competitive conversations differ at the discourse level, an analysis of variance was computed. The two variables which are interpreted as conversational characteristics (number of turns and long pauses between turns) were submitted to an SPSS MANOVA in a split-plot 2 (condition) x 3 (group) between-subject design. There is one within-subject factor: begin-end of conversation (t1-t2). Measures are repeated for this factor. The other dependent variables are analyzed in a similar split-plot design except that there is one additional within block factor: status, for which measures are repeated as well.

In general, the homogeneity assumption was satisfied, except for the frequency of back channel cues. The mean values for the variables in co-operative and competitive conversations, and the main effects for conversation type are summarized in Table 5.2.

Table 5.2 demonstrates that more long pauses between turns, less interruptions, less back channel cues, more long pauses within turns, and more topic changes occur in the competitive conversations. The number of turns and number of words per turn do not differ between the two conversation types. This table also suggests that the dyads adopted different turn-taking strategies in co-operative and competitive conversations. Because there are less long pauses between turns and within turns in the co-operative conversations and more interruptions, it can be argued that the participants in these conversations were more eager to hold the

floor. From Table 5.2 it can also be inferred that co-operative dyads took more turns to discuss a single topic than the competitive dyads. In these conversations the dyads apparently take more time to be complete and precise or, in other words, to ensure the quality of the communicated messages.

The analysis of variance revealed two significant interaction effects involving conversation type and time: for the number of turns ($F = 6.58$, $p = .02$), and for the number of words per turn ($F = 4.32$, $p = .05$). The mean number of turns decreased in the second part of the competitive conversations, and more words were produced per turn.

Table 5.2 Mean frequency over time and main effects of conversation type for seven discourse variables

variable	co-operative mean freq.	competitive mean freq.	$F_{(24,1)}$	p
number of turns	42.27	40.87	.10	.75
pauses between turns	0.90	2.73	28.01	.00
interruptions	7.16	4.50	6.02	.02
back channels	7.28	2.83	34.89	.00
pauses within turns	1.33	2.06	4.19	.05
words per turn	12.52	11.05	2.73	.11
topic changes	3.74	6.66	11.75	.00

The reciprocity question

In order to test hypotheses 1 to 4, which address issues of reciprocity in co-operative and competitive conversations, intraclass correlations were computed on those discourse variables for which values for high and low status subjects were available. In Table 5.3 these correlations are listed separately for the total sample, the co-operative and the competitive conversations at t1 and t2.

As Table 5.3 demonstrates, clear differences emerge between the co-operative and the competitive conversations. In the co-operative conversations one of the five variables suggests significant ($p < .05$) reciprocity (interruptions) and two others suggest compensation (long pauses within turns, and number of words per turn) at t1. It is interesting to note that for the two remaining variables the intraclass correlation is significant at the .10 level. In the competitive conversations the high and low status subjects in a dyad are independent for all of the discourse variables at both points in time. This means that hypotheses 1 and 2 have been confirmed. As was predicted, in co-operative conversations a high degree of fit is achieved for a number of discourse features, and this is obviously not the case in the competitive conversations.

Table 5.3 Intraclass correlations for total group, co-operative and competitive conversations for five discourse variables

	total (d=30)		co-operative (d=15)		competitive (d=15)	
	t1	t2	t1	t2	t1	t2
interruptions	.45**	.48**	.49**	.51**	.38	.34
back channels	-.08	-.01	-.36	-.27	-.12	-.09
pauses w. turns	-.16	.24	-.43*	.42*	-.02	.08
words/turn	-.17	.04	-.45*	.10	.20	-.17
topic changes	.38*	.10	.34	.14	.19	.11

** p < .05; * p < .10; d = dyads

As Table 5.3 demonstrates, hypothesis 3 must be rejected. In the co-operative conversations, intraclass correlations do not increase between t1 and t2. Contrary to the prediction, most of the significant correlations in the co-operative conversations are obtained at t1, and the intraclass correlations decrease somewhat at t2. Hypothesis 4 is confirmed. All corresponding intraclass correlations at t1 in the competitive conversations are much lower, and the scores for both members in a dyad remain unrelated as time proceeds.

Status difference question

In order to test hypothesis 5 which holds that high and low status subjects differ with respect to a number of discourse variables, an analysis of variance was computed in the design outlined in section 3.5. As mentioned before, number of turns, and long switching pauses are treated as conversation characteristics. Again these variables are not included in the analysis as there are no separate scores available for high and low status interlocutors respectively.

No single significant ($p < .05$) main effect was obtained for status. High and low status subjects were found not to differ in the absolute frequency of occurrence of status related variables like the number of interruptions or number of topic changes. It may, however, still be the case that high and low status subjects shift their speech differentially in the course of the conversation (between t1 and t2). Significant changes in the speech of high and low status subjects will emerge from the analysis of variance in the interaction effects involving time and status.

The number of long pauses within turns yielded a significant three-way (group x time x status) interaction ($F = 3.68$, $p = .040$). In group 1, high status subjects tended to produce more pauses at t1 than at t2, whereas low status subjects produced more pauses at t2 than at t1. In group 3 this pattern was reversed: high

status speakers increased and low status speakers decreased the number of pauses within turns in the course of the conversation. As these findings do not concur with similar results for any other variable, and as it is not clear why this effect occurs in this variable but not in the others, it can be argued that this interaction is the result of pure coincidence.

Interesting additional information with respect to hypotheses 3 and 4 can be derived from an inspection of the question as to whether or not the mean values for the variables change over time, that is, between t1 and t2. This is the case for interruptions ($F = 8.22$, $p = .009$) and for topic changes ($F = 15.21$, $p = .001$). In both conversation types there are fewer interruptions and topic changes at t2.

5.3 DISCUSSION AND CONCLUSIONS

The analysis of the quantitative discourse variables has revealed several interesting observations. Apparently the antecedents for co-operative and competitive conversations have had profound effects on the communicative behaviour of the subjects in the experiment. The two conversation types differ with respect to the number of long pauses between turns, interruptions, back channel cues, long pauses within turns, and topic changes. From these observations it can be concluded that subjects in the co-operative dyads were more motivated to exchange information and ideas as the participants in the competitive dyads were.

Some of the differences found between co-operative and competitive conversations do not take the same direction as those found by Trimboli and Walker (1984). Trimboli and Walker found more interruptions in the competitive conversations whereas fewer were found in this study. Furthermore, Trimboli and Walker found shorter pauses within turns in the competitive conversations, and in this study there were more long pauses within turns in this conversation type.

These differences are self-explanatory, however, if Trimboli and Walker's operationalization of co-operativeness and competitiveness is compared to the operationalization opted for here. Trimboli and Walker instructed their subjects to chat about topics on which they held similar views (co-operative) or to argue about topics on which they held opposite views (competitive). Thus, "in a co-operative conversation the participants are assumed to be motivated to co-operate in floor appointment while in a competitive conversation the participants compete for the floor" (Trimboli and Walker 1984: 300). However, the best strategy to follow in our competitive condition is to give as little information as possible, and to get as much information as possible in return. This difference in the operationalization of conversation type is reflected in the turn-taking strategies.

The high number of interruptions probably has different meanings within the

context of the two conversation types. In the co-operative conversations interruptions may signify that both interlocutors are willing to exchange as much information as possible as quickly as possible. In the competitive conversations, on the other hand, a high number of interruptions may indicate a lower level of politeness. The subjects concentrate on receiving information, and are actively involved in the process of making sure they will get that information, even if they repeatedly have to interrupt.

This observation illustrates the general problem of relating intentions to vocal behaviour (Beattie 1981). It is only under very restricted circumstances that this relationship appears to be straightforward. Any discourse variable, at least in principle, can signify multiple intentions or processes in different types of conversations. Hence, in order to interpret the meaning of a high or low frequency of occurrence for any discourse variable in a specific conversation, the whole setting has to be taken into account.

Accommodation

Co-operative and competitive conversations do not differ with respect to their discourse structure only. They also differ with respect to the accommodation between participants. In co-operative conversations reciprocity occurred for the number of interruptions, and compensation occurred for long pauses within turns and words per turn. For the two other variables, the number of back channel cues and the number of topic changes, there was a trend towards compensation and reciprocity respectively. In the competitive conversations reciprocity or compensation was not found for any of the variables.

Hypotheses 3 and 4, which hold that reciprocity will increase during co-operative conversations and will not occur in competitive conversations, need some discussion. At the beginning of the co-operative conversations reciprocity was found for the number of interruptions, and compensation for the number of long pauses within turns and number of words per turn. Contrary to hypothesis 3, reciprocity decreased in the course of the conversation. A pattern of rising correlations does not emerge over time for any of the discourse variables in the co-operative conversations.

This can be explained perhaps by means of a metaphor derived from the game of chess. In chess there is a limited repertoire of well-known opening moves. At the beginning of the game, one of these opening strategies is adopted. As the game proceeds the players gradually depart from fixed schemes, and have to improvise more and more. Similar processes may have occurred in the co-operative conversations. At the beginning of the conversation the players adapt to a repertoire of moves, limited by aspects of the task, the setting, the experimental instructions for the task and the relative status of the participants. As time proceeds in some dyads the high status subjects, for example, may prove not to be as competent as the interlocutor expected considering his status. In others, the low status member may prove to be very incompetent indeed, and to be of very little help. Maybe one

of the members in a dyad is losing interest and becomes less motivated in the course of the conversation. Differences between the individual co-operative conversations increase as time proceeds, and as these processes may or may not occur reciprocity is established in some conversations but not in others. Unfortunately, the method of analysis does not make it feasible to study differences at the level of individual conversations (see section 9.3).

Status

As was mentioned in section 5.2, some variables have been related to dominance in conversations in other studies. However, these are not related to the status of the participants in the recorded conversations in the experiment. No single main effect of the interlocutors' status was found for any of the discourse variables. Beattie (1981) convincingly argued that there is no direct and simple relation between interruptions and status. The results demonstrate that the same holds for mean utterance length and for topic changes. One may dominate a conversation without having the floor all the time just by asking short questions that elicit long answers. In this case, the person that holds the floor most of the time is not the person that dominates the conversation.

There may be an additional and very different explanation for the fact that no status effects were obtained. The interactional status as operationalized here, holds no relation to social power or control over the interlocutor. Both subjects knew they would never again be confronted with their interlocutor after the experiment. Low status subjects, therefore, had nothing to lose with respect to life after the experiment, but they had something to lose in the experiment (the reward!). So there was no reason for the low status subject to adapt to a powerless role, or to display powerless speech characteristics. These results demonstrate that it is important to specify dynamic effects of status on accommodation processes. Perhaps a person's social economic status is of greater influence on his tendencies to accommodate than his expert status is. This again may be the case for some contexts, but not for others.

6 ACCOMMODATION IN SEGMENTAL VARIABLES

6.0 INTRODUCTION

Issues of linguistic accommodation were studied long before the emergence of accommodation theory (Trudgill 1986; Hagen 1988). Kloeke (1927) described how he adopted the local pronunciation of the vowel (aa) as a six-year-old boy after he moved from Schagen to Haarlem (both in Holland). His observations demonstrate that he was clearly aware of the social values attached to this speech shift. In his view the adaptation process is guided by at least two contradictory forces. Although a person knows he can earn prestige by adopting the speech of the higher classes, he is at the same time aware that such a speech shift is judged negatively by the people in his own social class. Kloeke's ideas are clearly reminiscent of those put forward in the first version of SAT.

As has already been noted in chapter 1, Kloeke (1927) considered the adaptation of the lower classes to the speech of the higher classes to be the principal source of language change. His study aims at explaining the change of the early Germanic monophthong [u:] via [y:] into the diphthong [oey]. This sound change took place as a lexically diffuse process which started in the 17th century. Kloeke attempts to prove that these sound changes resulted from a process of adaptation or borrowing from the higher classes.

In recent years many reports of interpersonal convergence at the segmental level have been published, and evidence in favour of the phenomenon is abundant (cf. Cappella 1985; Giles et al. 1987; Giles and Coupland 1991). Processes of linguistic accommodation have been assessed by means of experimental and observational procedures, both as short term phenomena (e.g. Coupland 1988) and as long term phenomena (e.g. Trudgill 1986; Vousten forthcoming). Many sociolinguistic studies demonstrate that people converge their speech style to the style of their interlocutor. Evidence for linguistic divergence in interpersonal communication is notably lacking (Giles et al. 1987).

In the previous chapter it was demonstrated that the co-operative and the competitive conversations recorded in the experiment differ at the discourse level. It appears that the subjects in the two conversation types behaved differently. This raises an interesting question as to whether or not the subjects in the two conversation types also differ with respect to their linguistic accommodation behaviour. In order to answer this question, the following reciprocity hypotheses are tested:

1) In co-operative conversations, a high degree of fit at the linguistic level will be achieved, which is reflected in reciprocity in segmental variables.

2) In competitive conversations, a high degree of fit at the linguistic level will not be achieved and there is be no reciprocity or compensation in segmental variables.

3) If two members in a dyad achieve a high degree of fit at the segmental level, reciprocity increases as time proceeds.

4) If two members in a dyad do not achieve a high degree of fit at the segmental level, reciprocity or compensation will not be not established as time proceeds.

In addition, the status difference question is explored. Status is considered to be an important factor influencing accommodation which determines the direction and the magnitude of speech shifts. The status difference hypothesis is tested that:

5) High and low status subjects differ in the extent to which they accommodate their speech.

A central assumption in this chapter is that style shifts in a person's speech will emerge from the analysis of segmental variables as significant shifts in overall index scores (e.g. Chambers and Trudgill 1980). For this analysis segmental variables are selected that have variants on a Nijmegen accent-standard accent dimension or a standard-substandard dimension. The selection of a set of variables used to test the hypotheses listed above is commented on in the next section (6.1).

As was pointed out in chapter 3, the subjects' status and their linguistic accent are both controlled for in the experimental design (see figure 3.5). So prior to the conversation (at t0) standard-accented and Nijmegen-accented subjects can be expected to differ with regard to the pronunciation of at least some segmental variables. This expectation will be tested first. Effects of the independent variables conversation type, group, and accent on the use of segmental variables are discussed in addition to the general hypotheses. The transcription of the variables is discussed in section 6.2. Results are presented in 6.3, and discussed in section 6.4.

6.1 SELECTION OF SEGMENTAL VARIABLES

It could be argued that all segmental variables in the speech material are interesting, and that therefore the speech material should be transcribed

phonetically, and analysed in detail. However, producing phonetically narrow segmental transcriptions of running speech is notoriously laborious. For the purposes of this research it would be very impractical to make transcriptions of all the speech material, in order to select interesting variables afterwards. The line of argument is similar to the one adopted for selecting lexical variables (see section 4.1). Assume that a speaker in a dyad adapts to some unique articulatory characteristic in his interlocutor's speech. Although this fact may be an interesting manifestation of interpersonal accommodation, it would not lead to a significant finding within the experimental design. If only one speaker in the sample has this salient speech characteristic, the effect will disappear once the data are analysed statistically. For practical reasons it was decided to concentrate exclusively on a limited number of segmental variables.

In order to support the purposes of this research, segmental variables had to discriminate between high status and low status subjects and between Nijmegen-accented and standard-accented speakers. In addition, these variables had to have variants that could be transcribed reliably, and had a sufficiently high frequency of occurrence. The literature on the Nijmegen dialect was consulted in order to find variables that meet these criteria. Three important studies deal with regional or social variation in the Nijmegen area: Terpstra (1952), van Bezooijen and van Hout (1985), and van Hout (1989). In Table 6.1 an overview is presented of the segmental variables investigated in these contributions, and the phonetic dimensions of their variants.

Terpstra (1952) investigated the distribution of voiced and voiceless variants in a number of villages close to the city of Nijmegen. He observed that there is a tendency in the Nijmegen area to devoice the fricatives (v), (z), and (ch) as well as the plosives (b) and (d).

Van Bezooijen and van Hout (1985) compared accent ratings and phonological transcriptions of speech samples from 32 speakers born and bred in Nijmegen. It is interesting to note that the speech samples used in their study are very similar to the ones analyzed here. The samples were about 90 seconds long and consisted of socially neutral utterances which were edited from informal interviews. Reliability scores were computed for the transcription of the fricatives and vowels listed in Table 6.1. Except for the vowel (e), reliability scores were very high. In addition, the study demonstrated a strong relationship between a speaker's social and economic status (SES) and the way his vowels were rated.

In a large-scale sociolinguistic study van Hout (1989) investigated a fairly large number of segmental, morphological, and lexical variables. The segmental variables are listed in Table 6.1. A factor analysis was applied to determine more general factors in the set of variables. Van Hout found that vowels and fricatives loaded on two separate factors. The vowels had high loadings on a "standard-dialect" factor which is related to the decline of the Nijmegen dialect in general. The fricatives loaded on a "standard-nonstandard" factor. This factor is related to the occurrence

of dialect forms which are paralleled by the occurrence of similar forms in (non)-standard Dutch. Both dimensions were found to be related to a speaker's occupational level. Significant effects emerged for the age factor as well. Young male subjects, produced fewer dialectical vowels, and more substandard variants than the older males did. These young males were about the same age as the subjects in this study.

Table 6.1 Segmental variables and the phonetic dimension of their variants in three studies on the Nijmegen dialect

variables	phonetic dimension of variants
Terpstra (1952)	
(z)	voiced-voiceless
(v)	voiced-voiceless
(ch)	voiced-voiceless
van Bezooijen and van Hout (1985)	
(z)	voiced-voiceless
(v)	voiced-voiceless
(ei)	diphthong-monophthong
(ui)	diphthong-monophthong
(e)	closed-open
(a)	fronted-back
van Hout (1989)	
(z)	voiced-voiceless
(v)	voiced-voiceless
(g)	velar-uvular
(ei)	diphthong-monophthong
(ui)	diphthong-monophthong
(ou)	diphthong-monophthong
(oo)	diphthong-monophthong
(aa)	fronted-back
(t-deletion)	

Based on the results of these three investigations into the Nijmegen dialect, it was decided to select the segmental variables: (v), (z), (ch), (ei), (ui), and (a). To sum up, these variables cover important characteristics of the Nijmegen accent. They can be expected to discriminate either between high and low status (SES) speakers or between Nijmegen-accented and standard-accented speakers. Included are all but one of the variables from van Bezooijen and van Hout (1985). Not included is their variable (e), which was not rated reliably. The fricative (ch), which was included in Terpstra (1952) and van Hout (1989) was added to their list. Neither of these studies contains data on the reliability of the ratings for this variable. The variables (ch), (z), and (aa) have a 'marker' status in the Nijmegen area (van Hout 1989).

The process of transcribing the selected variables (v), (z), (ch), (ei), (ui), and (a) was divided into four successive stages:

- defining the variables' relevant linguistic contexts;
- marking all instances of the variables in these contexts in the typescript;
- transcribing the variables;
- coding the variants.

These four stages are commented on in this section. An overview of variants which are distinguished, and the values associated with these variants is presented in Table 6.2. This table also contains the mean frequency of occurrence of the variables, in the three speech samples (t0, t1, t2). Issues concerning the frequency of the variables and their variants (see 6.1) are discussed at the end of this section.

Defining linguistic contexts

(v) and (z)
These fricatives are not transcribed in syllable-initial (onset) positions in which <z> or <v> is written in standard Dutch when they follow voiceless plosives or fricatives, or word boundaries preceded by either of these segments. Progressive assimilation rules in Dutch operate to devoice the fricatives in these positions (Booij 1981; Slis 1985). In addition, unstressed prefixes ('ver-') were excluded. In these linguistic contexts the voiceless Nijmegen-accented realization can be expected to be the same as the standard-accented pronunciation.

Three variants of (v) and (z) are distinguished. The two principal ones are of course the voiced and the unvoiced variants. Retracted realizations of (z) occurred rather frequently. In coding the transcriptions, these realizations were treated as a third, intermediate variant together with those in which voicing is very weak or voice onset occurs at an extremely late stage.

(ch)
The fricative (ch) is transcribed in all phonological contexts, in syllable-initial as well as in syllable-final positions. Four variants are distinguished in two phonetic dimensions: voiced-voiceless and velar-uvular. These variants cannot be scaled on a linear dimension. This implies that (ch) in fact constitutes two variables, one velar (ch) and one uvular (g). Both can be either voiced or unvoiced.

Scraping realizations of the uvular variants are marked. Scraping and uvularization is associated with standard Dutch speech. Velar variants are characteristic of the Nijmegen accent (and in fact of the southern part of the Netherlands as a whole).

(ei) and (ui)

These diphthongs were transcribed in all contexts except one. The diphthong (ei) was not transcribed in frequent function words such as 'bij' (nearby) or 'hij' (he). In running speech the diphthongs in these lexical items tend to be very short (van Hout, personal communication). In order not to treat this reduction as an instance of phonetic monophthongization, these function words were excluded.

For both diphthongs three variants were distinguished: one monophthong, one intermediate variant in which the second element is short or weak, and one diphthong. The monophthong realization is regarded as characteristic of the Nijmegen accent.

(aa)

The vowel (aa) is transcribed in all contexts except in frequent lexical items such as 'maar' (but) and 'ja' (yes). Three variants are distinguished: the standard open and fronted variant, and a closed and back variant which is typical of the Nijmegen accent. The third variant is situated between these extremes, and is either more back or more closed than the standard variant.

Marking instances in the typescript

The second stage of the process of transcribing the segmental variables, the marking of all instances of the variables in selected contexts, is rather uninteresting. It was carried out for purposes of convenience. Selected variables in appropriate contexts (see above) were replaced in the transliterations by the corresponding capital. This was done by means of a PASCAL program on a personal computer.

Transcribing the variables

The speech material for the transcription of segmental variables consisted of specially prepared edited tapes (see section 3.4). For each participant three samples were taken of about 60 to 90 seconds in length. The important point is that samples for the two members in a dyad were transcribed separately in order to avoid any bias in the transcription process. During the sampling of the utterances the original dialogue structure was scrambled. If complete conversations are transcribed, there is always a danger that transcription decisions are influenced by the linguistic expectations of the person who makes the transcription (Vieregge 1985). In this case, the person may have an extra bias as he may expect interpersonal accommodation to occur. By looking at the utterances of the two members in a dyad separately the chance of forcing transcription decisions into a valued direction was minimized. In addition, samples of high and low status members in a dyad were randomized, and there were no content cues in the sample that permit inferring the status of the speaker in a conversation.

In the first stage of the transcription procedure a panel of three trained linguists

listened to the tape recordings and discussed the seven variables and their variants. One of the members of this panel is a specialist in segmental transcription of speech, and the second is a specialist on the Nijmegen dialect. After a few preliminary sessions, the panel co-operated in preparing a consensus transcription of a representative sample of the speech material. The aim of this procedure was to enhance the external validity of the transcriptions (Shriberg, Kwiatkowski and Hoffmann 1984).

Next, the material was transcribed by the third member of the panel who referred to the consensus transcription. After a month the material was transcribed again by the same person. A decision was made on instances for which there was no intra-rater agreement by listening to the speech material a third time. The aim of this procedure was of course to enhance the internal validity.

Table 6.2 Mean frequency of occurrence of six phonological variables in three speech samples, the variants distinguished, and values assigned to the variants

variable	mean frequency per sample			mean	variants / values		
	t0	t1	t2		0	1	2
(v)	8.12	11.73	11.17	10.34	[f]	[v̥]	[v]
(z)	4.58	7.45	6.87	6.30	[s]	[z̥]	[z]
(g)					[χ]	[ʁ]	---
					[x]	[ɣ]	---
	14.42	21.65	25.27	20.45			
(ch)					[ɣ]	[ʁ]	---
					[x]	[χ]	---
(ei)	11.92	10.08	9.63	10.54	[ɛ]	[e.']	[ei]
(ui)	3.00	2.67	3.23	2.97	[oe]	[oe.']	[oey]
(aa)	13.28	11.92	13.13	12.78	[a+]	[a'.]	[a.]

Coding the transcribed variants

Values were assigned to the transcribed occurrences of the segmental variables. These values are equivalent for the variables (v), (z), (ei), (ui), and (a). Three variants are distinguished for each of these variables. The more similar a variant is to the standard Dutch articulation, the higher its value. The Nijmegen-accented variants were assigned the value 0, the standard-accented variants received the value 2. A value of 1 was assigned to the intermediate variants. The variable (ch) has two

variants on two phonetic dimensions which were denoted above as (ch) and (g). These are treated as separate variables, and their variants have either the value 0 or 1 (see Table 6.2)

An index score was computed for each variable, separately for each informant and for the three speech samples. This index score is the quotient of the sum of score values for a variable and the frequency of its occurrence in the sample. For (ch) two indices were computed, which both had the same denominator: the frequency of occurrence. The two velar variants are added in the numerator of the index (g). In the numerator of the second index which will be referred to as (ch), the two voiced variants were added up.

In sociolinguistics it is common practice to transform scores for segmental variables to a scale ranging from 0 to 100. To this end, the scores for (v), (z), (ui), (ei) and (aa) were multiplied by 50, and the scores for (ch) and (g) by 100. This is a linear transformation which is of no influence on intraclass correlation coefficients or analyses of variance. The resulting index is 0 if a speaker uses the Nijmegen accented variants only. The maximum value of 100 occurs if only standard accent variants are used.

Mean frequency of the variables

In section 6.1 the topic of the frequency of the segmental variables was touched upon. The issue is whether or not the frequency of the variables is sufficiently high. This question can be taken up now that some transcription work has been done. Table 6.2 contains the frequency of occurrence of the seven variables in each of the three speech samples, and their mean frequency. (Of course the frequencies of (ch) and (g) are the same.)

As is obvious from Table 6.2, the frequency of occurrence of (ui) is low compared to all other variables. Additional frequency data not included in Table 6.2 show that on average only 66% of the subjects produced (ui) at least twice per sample. But given the limited duration of our speech samples (less than 90 seconds), is it fair to expect the frequency of (ui) to be higher? Van Bezooijen and van Hout (1985) for instance found a lower frequency in speech samples of comparable length (mean = 1.69). In general, what is the relative frequency of (ui) in Dutch?

Brandt Corstius (1970) gives a rank order of the frequency of Dutch graphemes in a written corpus of 44,000 word tokens in newspaper texts. In his rank order of the relative frequency of vowels and diphthongs, <ui> takes up 13th position. A simple way to compare our data to this rank order is to estimate the proportion of two variables, (ei) and (ui) for instance.

Table 6.3 Mean frequency of variants of the segmental variables

variable	variants				mean	frequency of variants per sample			
(v)	[f]	[v̥]	[v]		10.34	5.81	1.23	3.30	
(z)	[s]	[z̥]	[z]		6.30	2.57	1.20	.49	
(g) (ch)	[x]	[ɣ]	[χ]	[ʁ]	20.45	12.05	2.75	4.85	0.78
(ei)	[ɛ]	[e.']	[ei]		10.54	1.45	1.24	7.85	
(ui)	[oe]	[oe.']	[oey]		2.97	0.63	0.86	1.47	
(a:)	[a+]	[a'.]	[a.]		12.78	0.19	2.63	9.95	

As Brandt Corstius' counts are based on graphemes, his frequency of <ei> cannot simply be equated to our (ei). In Dutch the grapheme <ij> is also pronounced as (ei) in most instances. In order to obtain an estimate of Brandt Corstius' frequency of (ei), his frequencies of <ij> and <ei> can be added up. This yields an estimate that is too high, as <ij> is pronounced as schwa in some instances. The proportion of the frequencies of (<ij> + <ei>) : <ui> in Brandt Corstius (1970) equals 4.02 : 1. This proportion equals 3.55 : 1 in our speech material, averaged over three samples. Taking into account that our own estimate of (ei) is too low (frequent function words were excluded), this indicates that the distribution of (ui) relative to the frequency of (ei) in the speech material can be considered to be fairly representative.

To sum up then, the mean frequency of (ui) in the speech material is rather low. However, it can be argued that this variable is represented in a fair distribution seen in relation to the other diphthong. The only way to increase the number of instances of (ui) would be to take larger speech samples, which is to sample speech from a larger time domain. This procedure cannot be followed within the experimental design, as it would interfere with our intention to investigate accommodation processes by comparing the beginning and the end of a conversation. Therefore we decided not to drop the variable. As the variable has some drawbacks because of its low frequency, we must be aware of the fact that results with respect to this variable must be interpreted with care. Missing values of (ui) are replaced by cell means.

Mean frequency of variants

In order to provide a general overview of the distribution of variants in the speech material, Table 6.3 contains the mean frequency of variants over the three speech samples. (The sum of frequencies of the variants of each variable adds up to the mean frequency of the variables. Differences are due to rounding error.)

As Table 6.3 demonstrates, the frequency distribution for variants of the vowels differs slightly from that of the fricatives. For the vowels, subjects generally use the standard-accented variants. This is especially clear for (aa) for which the Nijmegen-accented variant is very rare. For the fricatives (v) and (z), the frequency of Nijmegen-accented and standard-accented variants is about the same. For (g) and (ch) the majority of occurrences are unvoiced.

The distribution of vowels and fricatives also differs in the frequency of occurrence of the intermediate variants. For (v) and (z) the frequency of the variant coded 1 is lower than the frequency of both other variants. This is different for (ui) and (a.). For these vowels the frequency of the intermediate variant is higher than the frequency of the Nijmegen accented variant. For the diphthong (ei) the frequency of the 0 coded variant and the variant 1 are about the same.

From Table 6.3 it can be concluded in general that all variants occur in the speech samples with a sufficiently high frequency. An exception to this general conclusion is the frequency of [a+], which is low compared to the frequency of the other variants of (aa). Problems with regard to the variable (ui) have been discussed above.

6.3 RESULTS

In this section the scores for standard-accented and Nijmegen-accented subjects at t0 are compared first. In addition the effects of conversation type, group, and status at this measurement point are dealt with. Next, the reciprocity question and the status difference question are investigated.

Effects of group and conversation type at t0

In the experimental design two subgroups were distinguished according to their regional accent (see section 3.3). As was discussed in the methods chapter, subjects were divided into standard Dutch-accented speakers and Nijmegen-accented speakers by means of an overall accent rating from two raters. The question here is whether or not the two subgroups in the design displayed differences on the segmental variables under study before the conversation was started. The speech

material at t0 contains the subjects' summaries of the instructions. The subjects had not had contact with their interlocutor at this stage in the experiment.

Table 6.4 Mean scores, standard deviations and t-test for total population, Nijmegen accented, and standard accented subjects on segmental variables at t0

	population (n=60)		Nijm. accent (n=20)		stan. accent (n=40)			
	mean	std dev	mean	std dev	mean	std dev	t	p
(v)	31.2	29.1	25.1	26.8	34.3	30.0	-1.16	.25
(z)	47.1	34.1	39.9	34.1	50.7	35.0	-1.16	.25
(g)	27.4	39.4	3.2	7.2	39.4	43.3	-3.70	.00
(ch)	14.9	14.7	16.4	13.9	14.2	15.3	.55	.59
(ei)	86.3	18.0	79.8	23.2	89.5	13.9	-2.65	.01
(ui)	60.8	35.3	44.5	34.3	68.9	33.3	-2.02	.05
(a)	87.9	16.6	79.8	20.6	92.0	12.6	-2.84	.01

Presented in Table 6.4 are the mean scores on the seven segmental variables at t0, broken down by accent. The experimental design included 20 Nijmegen-accented subjects and 40 standard-accented subjects (see Figure 3.5). From this table it is obvious that the scores for both groups of subjects for the fricatives (v), (z), and (ch) are closer to the Nijmegen-accented end of the scale. This implies that fricatives were unvoiced for both groups in most cases (which was already suggested in Table 6.3). The mean scores for (ei) and (a), on the contrary, are closer to the standard end of the scale for both groups.

In order to test the statistical significance of the differences between standard and Nijmegen-accented subjects, t-tests were computed separately for each variable. The differences for the variables (g), (ui), (ei), and (a) proved significant ($p < .05$). standard-accented subjects produced more scraping uvular variants of (g), and Nijmegen-accented speakers realized (ui) and (ei) more monophthong than standard-accent speakers did, and produced more Nijmegen-accented variants of (a).

The standard-accented and Nijmegen-accented subjects were randomly divided over the two conversation types (see section 3.3). Therefore, differences between the accent scores for the two conversation types at t0 ought to be negligible, and conversation type x group interactions should not be significant. These expectations were tested by means of an SPSS MANOVA for the speech samples at t0. A significant main effect of conversation type ($F = 4.76$, $p = .039$) was obtained for the variable (z), and a significant main effect of group ($F = 5.30$, $p = .012$) was found on the variable (v) only. In addition, The conversation type x group interaction was significant for none of the segmental variables. Despite the two significant results, this suggests that the standard-accented and Nijmegen-accented speakers are divided at random over the conversation type and groups.

The reciprocity question

In order to investigate linguistic accommodation processes in dyadic conversations, intraclass correlations were computed over the seven segmental variables. As was discussed in section 3.5 correlations were computed for the total sample and for both conversation types separately. The intraclass correlation coefficients are presented in Table 6.5.

As this table demonstrates, the results are not especially impressive. First, the assumption that the scores for the high and low status subjects is unrelated at t0 is not true for all variables. In the co-operative conversations the variable (ei) correlates significantly at this point in time, and in the competitive conversations the intraclass correlation at t0 is significant for (ch) and (ui). Of course these significant correlations do not mean that there is real reciprocity because there is no behaviour that can be reciprocated. At t0 there had been no contact between the members in a dyad.

Table 6.5 Intraclass correlations for the total group, competitive and co-operative conversations over three speech samples

	total (d=30)			co-operative (d=15)			competitive (d=15)		
	t0	t1	t2	t0	t1	t2	t0	t1	t2
(v)	-.16	.09	-.22	-.33	-.09	-.40	-.00	.27	.17
(z)	.31*	.31*	.10	.29	.27	.15	.22	.36	.09
(g)	-.20	-.08	-.12	-.26	-.14	-.26	-.15	-.00	-.00
(ch)	.25	-.36*	-.07	-.04	-.19	-.40	.55**	-.54**	.44*
(ui)	-.42**	-.13	-.30*	-.14	-.01	-.11	-.61**	-.24	-.40
(ei)	-.11	-.36*	-.22	.45*	-.26	-.11	-.30	-.41	-.28
(aa)	-.22	-.13	.43**	-.05	-.02	.63**	-.31	-.25	.26

**p < .05 *p < .10

From Table 6.5 we must conclude that reciprocity occurs only for the variable (aa). This is not enough to accept hypothesis 1, which holds that a high degree of fit will be achieved in the co-operative conversations, Only for this variable (aa) reciprocity increases as time proceeds. Therefore, hypothesis 3 is rejected as well. It is not the case that reciprocity in the co-operative conversations increases as time proceeds.

In the competitive conversations the intraclass correlation for (ch) is significant at t2. However, as this correlation was already significant at t0, this does not mean that reciprocity was established in the course of the conversation. Hypotheses 2 and 4 are confirmed: in the competitive conversations a high degree of fit at the segmental level is not achieved, and reciprocity does not occur at any point in time.

For the total sample, it appears that the scores for the two members in a dyad tend to become more similar during the conversation (at t1 or t2). At t0 the correlations, as expected, are low except for (z) and (ui). For (ch), (ei) and (aa) significant correlations occur either at t1 or t2. For (g), none of the correlations are significant. However, the results are very diffuse, and do not give strong support for any generally positive conclusion.

Status difference question

In order to assess the shifts in cell means during the conversations, an analysis of variance was performed in the design which was outlined in section 3.5. Univariate tests on the homogeneity of variance proved significant for all cells of the variable (g). For all others the assumption was satisfied.

No main effects were obtained for conversation type. One single significant main effect of status occurred for (v) ($F = 4.43$, $p = .046$). High status speakers produced more voiced variants for (v). This difference between high and low status subjects does not change as time proceeds. Main effects of the factor time were obtained for (v) ($F = 3.58$, $p = .035$) and (ei) ($F = 7.89$, $p = .001$). For (v) less standard-accented variants occurred at t0 as opposed to both other measurement points. For (ei) the effect takes the alternative direction: more standard variants occurred at t0.

As was already noted, at t0 standard-accented and Nijmegen-accented subjects differed for the variables (g), (ui), (ei), and (aa). Group x status interactions were significant for (g) ($F = 6.50$, $p = .006$), (ui) ($F = 8.95$, $p = .001$), and for (ei) ($F = 3.44$, $p = .048$). In group 1 high status speakers are characterized by more uvular variants of (g), and more standard variants for (ui) and (ei), and in group 3 the low status subjects hold these same characteristics. The interaction for these variables is a direct result of the manipulation of status and accent in the experimental design. The time x group x status interaction for these variables proved not to be significant. This implies that the initial differences between Nijmegen-accented and standard-accented subjects for these three variables do not change significantly in the course of the conversation. This is different for the variable (aa). For this variable the group x time x status interaction proved significant ($F = 3.81$, $p = .009$). The mean scores demonstrate that the differences between Nijmegen accented and standard accented subjects decreased as time proceeds.

Based on a transcription of seven segmental variables, the Nijmegen-accented and the standard-accented subjects were found to differ on four variables prior to the conversation: (g), (ui), (ei), and (aa). The ratings of the subjects' accents by two trained linguists in the pre-test are apparently related to these four variables. Van Bezooijen and van Hout (1985) found high correlations between a phonetically narrow segmental transcription of Nijmegen accented diphthongs and vowels and overall accent ratings. In general, this conclusion is replicated in this study.

Although Nijmegen-accented and standard-accented subjects were found to differ on these four variables, results regarding accommodation processes at the segmental level were not especially impressive. Seven segmental variables were transcribed in well defined contexts, and index scores were computed. In the co-operative conversations reciprocity occurred with respect to one of these variables only: the variable (aa), and only for this variable was reciprocity found to occur. As predicted, reciprocity or compensation were not found in competitive conversations for any of the segmental variables.

Trudgill (1981; 1985) has suggested that linguistic features that are relatively high in the speaker's consciousness (markers and stereotypes) will be more important for accommodation processes than other features (indicators). As mentioned before, the variable (aa) has been demonstrated to hold a marker status in the Nijmegen area (van Hout 1989). However, this holds for the variables (z) and (ch) as well, and no reciprocity occurred for these variables. It appears that reciprocity in co-operative conversations is established for some variables, but not for others, independent of the marker status of a variable.

There is no evidence for the status difference hypothesis which holds that high and low status subjects differ with respect to the extent to which they accommodate their speech. The evidence for accommodation at the segmental level in other studies is overwhelming. Therefore, it is important to find an answer to the question why accommodation at the segmental level was not found in the co-operative conversations in this study.

First, one might object that the transcriptions were unreliable, and that accommodation was not found in the analysis for that reason although it does in fact occur in the conversations. However, if this is indeed the case, then why do differences between Nijmegen-accented and standard-accented subjects emerge at t0? And why would these differences take the same direction in other studies? Arguably, the transcriptions in this study are not less reliable than the transcriptions in other studies.

Secondly, it might be that accommodation processes do not occur in the conversations because the participants have a very restricted phonological range. The subjects in the experiment may have adapted their speech to a rather formal style at t0, which they consider appropriate for use during the experiment, and they

stick to this formal pronunciation in the conversation as well. The variance within the phonological range displayed by the individual subjects display in this situation would be rather limited, and as a result accommodation cannot occur. However, standard accented and Nijmegen accented subjects were found to differ on a standard-dialect dimension. If this explanation were true, this would imply that the Nijmegen-accented subjects are at the top end of their formal register, which makes sense. But at the same time it would imply that the standard accented subjects are at the bottom end of their register, which is highly improbable given the fact that the formality of the situation is the same for all subjects.

Coupland (1988) investigated accommodation processes in the speech of a shop assistant. There is a second major difference between this study and Coupland's. The shop assistant study is conducted in an n = 1 design: the speech of one subject was compared in conversation with different interlocutors. It is generally accepted that individual characteristics determine a person's conversational behaviour (e.g. Ickes and Barnes 1977). It might well be that the shop assistant tended to accommodate her speech more than the average subjects in this research did. In addition, it might be that the reward for accommodating (selling more tickets and making sure she did not lose her job) was much higher than is the case for the subjects in our experiment[3].

As was noted in the introduction to this chapter, the assumption behind the analysis of the segmental variables is that subjects will shift their speech systematically along well-defined phonetic dimensions. The question is whether this assumption is justified. In the Netherlands the variable (ch) is stigmatized. People living in the south of the country are generally proud of their more appropriate variants, whereas people living in the west of the country actually look down on those who do not scrape their throats. Despite these strong and contradictory attitudes, the transcriptions reveal several examples of subjects habitually using velar variants who produced one or two uvular variants at t1 or t2. These examples occur in both co-operative and competitive conversations.

These changes do not result in significant intraclass correlations because the shift is not systematic. Nevertheless, these intermittent shifts can be considered to be highly significant in the perception of the participants in the conversation as they signal first of all an awareness of existing differences, and, second, the intention to overcome them. In other words: a limited number of 'accommodated' variants may have a high communicative signal value. If this explanation is true, it gives rise to a new interpretation of accommodation in interpersonal conversations: it can be implemented as a local, short term phenomenon.

This interpretation nicely fits in with the generally accepted fact that people differ in the magnitude to which they tend to shift their speech. For some individuals the assumption that systematic long-term shifts occur might be valid. Other speakers

[3]Similar arguments hold with respect to Trudgill (1981).

may signal their intention to adapt their speech, maybe equally effectively, by adapting just a few variants in one or two occurrences which they pronounce with a strong emphasis. More research at the individual level is needed in order to examine this interpretation of accommodation processes.

7 ACCOMMODATION IN PROSODIC AND PARALINGUISTIC VARIABLES

7.0 INTRODUCTION

Two of the channels of communication that were distinguished in chapter 1 are central in this chapter: the prosodic and the paralinguistic channel. At the prosodic level subjects were found to accommodate their intensity (Black 1949; Natale 1975; Siegel and Pick 1974), speech rate (Webb 1972), and intonation (Leiser, de Alberdi and Carr 1987) to an interlocutor or to tape-recorded messages. As Cappella (1985: 406) notes, the evidence for matching in at least some prosodic variables is "quite strong and remarkably consistent across samples, operational definitions, and laboratories".

Thakerar et al. (1982) observed that participants in unequal status dyads accommodated their speech rate in a previously unexpected way. High status subjects were found to decrease their speech rates in the second half of a conversation, whereas low status subjects, on the other hand, were found to increase their speech rates. This observation gave rise to the introduction of a theoretical distinction between subjective and objective accommodation in SAT (see section 2.1.2).

Gregory (1983; 1986) investigated accommodation processes in conversations between an interviewer and a group of U.S. airmen. For both participants in a conversation three speech samples were taken: one from the beginning of a conversation, one from the middle and one from the end. Speech samples were analyzed by means of a Fourier series routine. Related samples of interviewer and interviewee were compared by means of pearson correlations. The results show significant correlations between the participants in a dyad for the frequency range between 1,029 and 2,560 Hz. Within-dyad correlations for the higher and the lower frequency ranges were significantly lower.

Although there are many examples of studies in which accommodation processes at the prosodic level were studied, accommodation in paralinguistic cues (as defined in chapter 1) has not been investigated before. In this chapter, the central issue is whether or not accommodation processes at the prosodic and the paralinguistic level are different in the recorded co-operative and competitive conversations. The accommodative behaviour of high and low status subjects is compared. Specific hypotheses are:

1) In co-operative conversations a high degree of fit at the prosodic and paralinguistic level will be achieved, which is reflected in reciprocity in prosodic and paralinguistic variables.

2) In competitive conversations a high degree of fit at the prosodic and paralinguistic level will not be achieved, and there is no reciprocity or compensation in prosodic and paralinguistic variables.

3) If two members in a dyad achieve a high degree of fit at the prosodic and paralinguistic level, reciprocity increases as time proceeds.

4) If two members in a dyad do not achieve a high degree of fit at the prosodic and paralinguistic level, reciprocity or compensation will not be established as time proceeds.

5) High and low status subjects differ in the extent to which they accommodate their speech.

Accommodation is investigated with respect to five variables. The selection of this set of variables is briefly commented on in section 7.1. It is not clear whether or not the Nijmegen-accented and the standard-accented subjects differ systematically with respect to these variables. Therefore, differences in these variables between these two subgroups prior to the conversation (at t0) are investigated first. In section 7.2 the results are presented, and they are discussed in section 7.3.

7.1 SELECTION OF VARIABLES

The selection of variables for the analysis of prosodic and paralinguistic cues was guided mainly by pragmatic motives. It was decided to use 'objective' analytical techniques in order to investigate these speech variables. Hardware facilities and software procedures for measuring pitch, pitch variation, pitch perturbation, and loudness variation are available for use at the Phonetics section of the Department of Language and Speech. These facilities make use of the Linear Predictive Coding (LPC) analysis, which is a basic technique for the analysis of signals (Markel and Gray 1976).

The prosodic variables pitch, pitch variation, and intensity variation were investigated by means of the LPC technique (which is very briefly outlined below). One single paralinguistic variable was included: pitch perturbation. This variable was also measured by means of an LPC analysis. All variables are defined below. In addition, a formal measure of tempo was computed.

pitch
Pitch is defined as the mean fundamental frequency in Hertz over all voiced 10 ms samples. Frames in which the pitch was less than 50 Hz or in which the pitch deviates more than 2,5 standard deviations from the mean were discarded.

pitch variation
Several different measures of pitch variability are known from the literature. Research has shown that these measures all correlate rather highly (Boves 1984). The standard deviation of all 10 ms pitch samples in Hz is computed here. From a perceptual and a statistical point of view standard deviations should not be compared across samples unless they are normalized with respect to the sample mean. Pitch variation therefore is defined as the quotient of the standard deviation and the mean pitch per sample (Boves 1984). Before computing the standard deviation, frames deviating more than 2,5 standard deviations from the mean were discarded.

intensity variation
Intensity or loudness expressed in dB is a measure for expressing the sound pressure levels P_1 and P_2 of two sounds. This difference is defined as:

$$dB = 20 \log P_1/P_2$$

Whenever the intensity of one single sound is referred to, this intensity is measured relative to a standard reference value of P_2.

The mean loudness of the speech samples is dependent (among other things) on the amplification or attenuation of the speech signal. The speech signal is amplified or attenuated when the speech samples are edited and copied in order to optimize the signal-noise ratio. Hence, it does not make sense to compare the mean intensity levels over samples. However, measures of variation in intensity can be compared despite the amplification of the speech signal.

The measure of intensity variation applied here is based upon all 10 ms amplitude gain factors. It is defined as the standard deviation of the expression $dB = 20 \log gain_i/gain_0$ over all 10 ms samples for which the gain factor does not equal 0. This means that 'silent' 10 ms samples (pauses) are excluded. In this expression the reference value is arbitrarily defined as an amplitude gain factor of 25. Before the standard deviation was computed, frames deviating more than 2,5 standard deviations from the mean were discarded.

pitch perturbation
Pitch perturbation is the technical term for the random cycle-to-cycle fluctuation in the duration of pitch periods. These fluctuations become audible when they exceed a certain threshold. Pitch perturbation is denoted by perceptual qualifications like

'hoarse', 'harsh', 'unsteady' and 'unpleasant' (Boves 1984).

Several measures of pitch perturbation are compared in Higgins and Saxman (1989). The authors conclude that Davis' PPQ (pitch perturbation quotient) may be the preferred measure for normal speakers. Davis' PPQ is defined as the ratio of the sum of period differences from a moving five-point average period, divided by the average period of the utterance:

$$E|(((P_{(i-2)}+P_{(i-1)}+P_{(i)}+P_{(i+1)}+P_{(i+2)})/5)-P_{(i)})|/\text{mean glottal period},$$

where $P_{(i)}$ is the current glottal period (Higgins and Saxman 1989).

articulation rate

Many different measures are used for speech tempo (Butcher 1981). Articulation rate is defined here after Butcher (1981) as the number of syllables per second of utterance time. Two values must be assessed in order to compute articulation rate: the number of syllables and the utterance time.

In the transliterations of the speech samples the number of syllables was counted by means of a computer program run on a personal computer. In the algorithm, vowel characters are defined as constants, and a syllable is defined as a unit containing a vowel which is not preceded by a vowel (Brandt Corstius 1970). In order to measure utterance time, the speech samples were played back at half speed, and the utterance length was timed by means of a digital stop watch. Pauses between utterances and pauses within utterances were subtracted from the total utterance time. This procedure was repeated twice, and reliability scores were computed (Cronbach's alpha). The reliability scores were .96 for the samples at t0, .88 for the samples at t1 and .92 for those at t2. The mean of the two measurements was taken as an estimate of utterance time.

Speech material and analysis

The analysis of the variables as defined above was performed on the tapes that were used for the transcription of segmental variables (see section 3.4) as well. However, in this case only the first 50 seconds of the edited speech samples were used in order to keep computer storage and processing demands within reasonable limits.

The analogue recordings were converted to digital speech files. The LPC analysis of the digital speech files was performed by means of the LVS software package (Vogten 1985). Technical and mathematical details of the analysis are discussed in Vogten (1983; 1985). The analysis extracts a number of parameters from the speech signal for each 10 ms speech segment. Parameters include a voiced-unvoiced decision, the fundamental frequency in case the frame is voiced, the intensity level of the sample, and frequencies and bandwiths for a variable number of formants.

In this section scores for Nijmegen-accented and standard-accented subjects at t0 are compared first. Next, the reciprocity question and the status difference question are addressed.

Effects of accent at t0

Two subgroups were distinguished in the experimental design with respect to their regional accent (see Figure 3.5). Table 7.1. contains the mean scores and the standard deviations of the total sample, the Nijmegen-accented and the standard-accented subjects at t0 for four prosodic variables and one paralinguistic variable. Differences between these two subgroups were tested for statistical significance by means of a t-test. This test did not yield any significant ($p < .05$) effect. Nijmegen-accented and standard-accented subjects did not differ for any of these variables before the conversation.

Effects of conversation type, group and status at t0

The subjects were assigned at random to one of the conversation types and groups. Therefore, no significant effects were expected to occur at t0 for these independent variables. Effects of conversation type, group and status at t0 were tested by means of an SPSS MANOVA.

Co-operative and competitive conversations were found to differ for pitch perturbation ($F = 5.01$, $p = .035$). The subjects in the competitive conversations had more pitch perturbation than the subjects in the co-operative conversations. No significant main effects emerged for group or status, and no interaction effects occurred.

Table 7.1 Mean scores for Nijmegen accented and standard accented subjects at t0

variable	(n=60) mean	(n=60) st.dev.	Nijmegen accent (n=20) mean	Nijmegen accent (n=20) st.dev.	standard accent (n=40) mean	standard accent (n=40) st.dev.
pitch	119.47	17.44	120.02	19.67	119.19	16.47
pitch var.	20.11	6.07	20.61	6.37	19.11	5.24
ampli.var.	.95	.09	.92	.09	.96	.08
art. rate	4.57	.62	4.35	.70	4.68	.54
pitch pert.	.27	.09	.26	.10	.28	.09

Reciprocity question

In order to investigate accommodation processes at the prosodic and paralinguistic level, intraclass correlations were computed over five dependent variables. Correlations were computed for the total sample and for both conversation types separately. The results are presented in Table 7.2.

In the competitive conversations none of the intraclass correlations are significant at t0. The assumption that the scores for the members in a dyad are unrelated before the conversation is true. In addition, there are no significant correlations at t1. At t2 a compensatory relation is established for pitch perturbation.

In the co-operative conversations a reciprocal relation for the variable pitch holds at all three measurement points. As a result of chance, reciprocity occurs before the conversation at t0. This reciprocal relation remains unaltered during the conversations. This indicates that the subjects do not accommodate their pitch in the course of a conversation. A compensatory relation is established in the co-operative conversations for the variable articulation rate. At t2 one of the members has a high articulation rate, while the other has a low articulation rate.

Table 7.2 Intraclass correlations for five prosodic and paralinguistic variables in the total sample, co-operative and competitive conversations

variable	total (d=30)			competitive (d=15)			co-operative (d=15)		
	t0	t1	t2	t0	t1	t2	t0	t1	t2
pitch	.19	.31*	.21	-.09	.15	-.20	.56**	.45*	.52**
pitch var.	-.18	-.20	.18	-.24	.00	.14	-.08	-.20	.11
ampl. var.	-.20	.16	.37*	-.06	-.21	.25	-.33	.35	.28
art. rate	-.21	.07	-.23	-.16	.28	-.05	-.26	-.32	-.50**
pitch pert.	-.28	-.14	-.05	-.36	-.15	-.57**	-.33	-.25	.25

* p < .10 ** p < .05

Status difference question

An analysis of variance was computed in order to assess shifts in cell means during the conversation. See section 3.5 for details of this analysis. No main effects were significant for group or status. A significant main effect occurred for conversation type on the amplitude variation variable (F = 7.03, p= .014). More variation in amplitude occurred in the co-operative conversations. At t0 no differences emerged

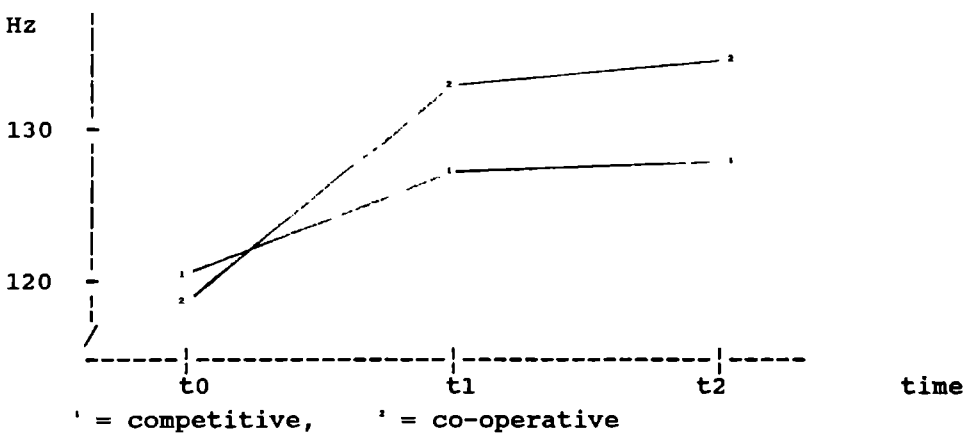
between the two conversation types for this variable.

Main effects for the factor time were obtained for pitch ($F = 69.49$, $p = .000$), pitch variation ($F = 36.91$, $p = .000$), amplitude variation ($F = 4.83$, $p = .012$), and articulation rate ($F = 15.72$, $p = .000$). Table 7.3 contains the overall mean scores on the five variables at the three measurement points. As this table demonstrates, differences arise between t0 and the two other measurement points. The f0 increases, articulation rate is lower, and the variability in pitch and loudness is higher during conversations. These differences are probably related to the communicative situation. There is no listener or no audience available at t0, which results in style-related speech differences (Boves 1986).

Table 7.3 Mean scores and standard deviations for prosodic and para-linguistic variables at t0, t1, and t2 (n=60)

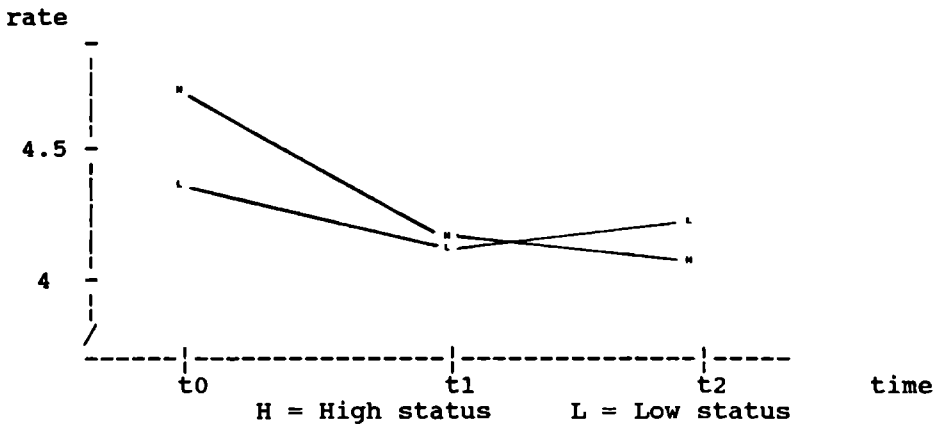
	t0		t1		t2	
	mean	st.dev.	mean	st.dev.	mean	st.dev.
pitch	119.47	17.44	130.10	19.78	131.93	20.70
pitch var.	20.11	6.07	25.02	6.71	26.87	7.00
ampli.var.	.95	.09	.98	.08	.99	.10
art. rate	4.57	.62	4.21	.46	4.26	.53
pitch pert.	.27	.09	.27	.10	.28	.10

Figure 7.1 Interaction between conversation type and time for pitch



Several significant interaction effects involving time were obtained. Conversation type x time interactions occurred for the variables pitch ($F = 11.96$, $p = .000$), pitch variation ($F = 3.98$, $p = .025$), and amplitude variation ($F = 3.88$, $p = .027$). The pattern is similar for all three variables. Figure 7.1 gives an impression of the interaction for pitch. As this figure suggests, differences between the two conversation types emerge at the beginning of the conversation, whereas the means for the two conversation types do not differ prior to the conversation. At t_0, where there is no audience, the manipulation of conversation type apparently does not influence the prosodic and paralinguistic variables. However, as can be expected, these differences arise as the conversations begin.

Figure 7.2 Interaction between status and time for articulation rate



There were no significant conversation type x time x status interactions, or group x time x status interactions. A significant time x status interaction was obtained for articulation rate. This interaction is illustrated in Figure 7.2. The difference between high and low status subjects is not significant at any of the three measurement points. However, the relative position of high and low status subjects changes in the course of the conversation.

At t0, prior to the conversations, Nijmegen-accented and standard-accented subjects did not differ with respect to the prosodic and paralinguistic variables under study. No differences between these groups of subjects emerged in the course of the conversation. Competitive conversations were characterized by the occurrence of more pitch perturbation at t0. Other differences between the two conversation types did emerge in the conversations. In general, co-operative conversations show more variation in amplitude and pitch. These conversations will make a more 'lively' impression on the naive listener as compared to the competitive conversations.

Despite these differences between the two conversation types, results regarding the reciprocity in co-operative and competitive conversations do not clearly support the hypotheses. As indicated in section 2.3, the assumption that similar results are obtained for several variables is implicit in the hypotheses. In the co-operative conversations a clear instance of compensation occurred with respect to articulation rate only. For this variable compensation increased as time proceeded. In the competitive conversations the variable pitch perturbation showed a similar pattern.

Thakerar et al. (1982) found a compensatory relation between high and low status subjects in co-operative conversations, and this result is replicated here. Nevertheless, it can be argued that hypotheses 1 and 3 must be rejected. Implicit in the hypotheses is the assumption that similar results will be obtained for several variables, which is not the case in the co-operative conversations. Hypothesis 2 regarding accommodation processes in competitive conversations is accepted for similar reasons. There is no reciprocity in prosodic and paralinguistic variables.

The prosodic and paralinguistic variables were measured by means of acoustical procedures. How these measures relate to perceptual ratings of running speech is a moot point. It is not certain that what is measured corresponds to a listener's perception, and it is these perceptions that the accommodation model deals with. However, from an objective point of view it does not appear to be the case that the prosodic and paralinguistic speech features 'become more alike' as time proceeds, and this is what the accommodation model would predict.

As was said before, an implicit assumption is that individuals adapt their speech, and that this adaptation results in a shift in their speech so that overall differences in speech characteristics occur. Again the question is whether or not this assumption is valid. When one listens to the recorded conversations, one gets the impression that accommodation in the prosodic variables clearly occurs at turn transition points. If a speaker takes a turn, he starts speaking at the level where the other person has ended: at a comparable pitch, and tempo. But as his turn proceeds he may return slowly to his own 'habitual' speech level, and the process is repeated for the next turn.

By virtue of this process conversations the participants do indeed match their speech characteristics, and it makes the conversations sound coherent. It is, however, not the case that significant long-term speech shifts emerge. Again this would mean

that the interpretation of accommodation processes tested in this study is not the correct interpretation for this interpersonal context. It may be promising to investigate an alternative interpretation of convergence as a locally operative short-term process in more detail.

8 ACCOMMODATION AND SPEECH STEREOTYPES

8.0 INTRODUCTION

Throughout the previous chapters the central focus has been on accommodation in objective speech characteristics. However, it is a central notion in CAT that speakers accommodate to the stereotypes they hold regarding the speech of the interlocutor, and not to the objective speech characteristics of the interlocutor. Evidence for this position was found in Thakerar et al. (1982), Beebe (1981), and many others. Coupland et al. (1988), for instance, deals with accommodation processes in intergenerational communication. It was found that people in talking to the elderly adapted their speech to the common stereotypes regarding elderly people. In this study members from two clearly distinguished groups are engaged in a conversation, and in that context well-known social stereotypes exist. Similar to Thakerar et al. (1982) the high and low status subjects in our study are not very different in terms of age or SES.

A high social status (SES) is stereotypically related to speaking moderately fast and to a standard accent (Giles and Powesland 1975). However, status in this study is operationalized as expert status. The central issue in this chapter is whether or not high expert status speakers and low expert status speakers also hold different stereotypes with respect to their interlocutor's speech. In addition, it is investigated whether the participants in the experiment have adapted their speech to these stereotypes. The following hypotheses are tested:

1) High and low status subjects hold different stereotypes regarding their interlocutor's speech characteristics.

2) High and low status subjects accommodate their speech to the stereotypes they hold regarding their interlocutor's speech.

A related question of importance is whether or not the status of the subjects is related to their perception of the personality of their interlocutor, and to the position they hold in the experiment. Due to the assignment of status the participants in the experiment have expectancies with respect to the competence of their interlocutor. They may try to integrate these expectancies and the new behavioural information they receive in the course of the conversation (Jones 1986). As a result, status related differences in perception must be expected to arise for personality traits that are related to competence.

In order to investigate these issues, a questionnaire was prepared which the subjects were asked to fill in at the end of the experiment (see section 3.3). In this chapter the selection of the questionnaire items is commented on first (section 8.1). In order to reduce the 38 items to a more restricted number of factors, a principal component analysis was applied which is discussed in section 8.2. Results regarding the status difference hypotheses are presented in section 8.3. The relations holding between the ratings of the speech characteristics and the perception of the interlocutor are focussed on in section 8.4, and results are discussed in section 8.5.

8.1 SELECTION OF DEPENDENT VARIABLES

In order to gain insight into the subjects' perception of their position in the experiment and into their perception of the interlocutor's speech, they were asked to answer 35 questions which were posed as bi-polar 7-point Likert scales. These scales were divided over 3 questionnaires which address the:

- **Interlocutor,**
- **Game and situation,**
- **Interlocutor's speech.**

The scales were listed in a rating booklet in random order. Items from the three questionnaires were mixed.

Interlocutor

Twelve scales were selected in order to assess the subject's perception of his interlocutor. They are similar to the scales commonly used in language attitude research (e.g. Van Bezooijen 1988; Vousten, Bongaerts and Knops 1989; van Erp 1991). The scales represent evaluation dimensions emerging from sociolinguistic and social psychological research: competence, social attractiveness, dominance, integrity and social economic status.

Game and situation

The 7 scales addressing the game and the situation were formulated for the purposes of the experiment. They represent dimensions of game performance and degree of co-operativeness of the interlocutor, as well as the subjects' perception of the fairness of the situation.

Interlocutor's speech

The scales that address the subjects' perception of the interlocutor's speech were adapted from a study of lay judgments about long-term voice and speech characteristics (van Bezooijen 1986). One of the 15 scales used in that study was not included ('staccato') because it turned out that it was not rated reliably. Four other scales were added ('accented', 'broad', 'pauses', and 'talks a lot'). These scales were not relevant for the material in van Bezooijen's study, but represent important aspects of the perception of the interlocutor in our experiment. The 18 scales represent dimensions of prosody, articulation, accent and voice quality.

8.2 DATA REDUCTION: PRINCIPAL COMPONENTS ANALYSIS

In order to gain insight into the distribution of the raw scores, descriptive statistics were computed by means of an SPSS program. The distribution did not display an extreme skewness or small variance for any of the scales. In order to reduce the 38 scales to a limited number of factors, principal components analyses were performed separately for each questionnaire.

Table 8.1 Rotated factor matrix perception interlocutor

SCALE	competence	soc. attract.	dominance
competent	.84	.18	.07
passive	.82	.05	.17
intelligent	.76	.16	.15
friendly	.14	.74	.11
not aggressive	-.06	.71	-.10
warm harted	.11	.65	.14
helpful*	.45	.64	-.33
trustworthy*	.40	.58	-.34
arrogant	-.25	-.09	.77
confident	.29	.10	.64
dominant	.21	-.11	.61
strong-willed*	.49	.13	.58

*: scales excluded from further analysis

Perception of the interlocutor

Table 8.1 presents the rotated factor matrix (varimax rotation) for the subjects' perception of their interlocutor. The percentage explained variance in this factor solution is 59.5. The principal components analysis extracted three factors with an eigenvalue greater than 1.

The factor solution in Table 8.1 displays the evaluation patterns often recurring in language attitude research (Knops 1987; Knops and Van Hout 1988). The three dimensions can be denoted by the names 'competence', 'social attractiveness' and 'dominance' respectively. However, not all scales have high loadings on one single factor only. The scales 'helpful', 'trustworthy', and 'strong-willed' have fairly high loadings (of .40 or above) on two or even three factors. These ambiguous scales (marked with an asterisk in Table 8.1) were excluded from further analysis.

Perception of the game and situation

The rotated factor matrix for the scales addressing the perception of the game and the situation is presented in Table 8.2. The percentage explained variance in this factor solution is 63.5. Three factors were extracted all of which had an eigenvalue greater than 1. In this factor solution none of the 7 scales has a substantial loading on more than one factor.

The scales loading on factor 1 address the subjects' 'game performance', and the scales loading on factor 2 address the interlocutors' 'co-operativeness'. Factor 3 consists of scales which aimed at measuring the subjects' 'stress'.

Table 8.2 Rotated factor matrix perception game and situation

SCALE	game perform.	co-operativ.	perc. stress
asks good questions	.89	-.00	-.03
superior	.73	-.07	-.01
gives good answers	.66	.21	-.24
co-operative	-.10	.82	-.01
fair situation	.14	.72	-.01
nervous	.07	.18	.82
not at ease	-.25	-.24	.72

Perception of the interlocutor's speech

The factor solution for the third questionnaire is not as clear as for the two preceding ones. The principal component analysis extracted as much as six factors, which could not be meaningfully interpreted in terms of a common underlying dimension. As mentioned, the scales in the questionnaire addressed segmental, prosodic and voice quality features. Therefore it was decided to enforce a three factor solution.

The resulting three factor solution (after varimax rotation) is presented in Table 8.3. The percentage explained variance in this three factor solution is only 49.4, but the solution makes interpretative sense. The three factors that are extracted seem to reflect the intended underlying dimensions, at least to a sufficient degree. The factors can be denoted by the names 'articulation/accent', 'prosody', and 'voice quality' respectively.

Three of the scales are excluded from further analysis: 'not varied', 'fluent', and 'not expressive'. The first of these scales (not varied) does not load highly (.40 or more) on any of the factors. The two others are ambiguous in the sense that they have high loadings on more than one factor.

Table 8.3 Rotated factor matrix perception interlocutor's speech

SCALE	articulation/accent	prosody	voice quality
broad	.72	.21	.23
rough	.71	.12	-.03
dul	.70	.26	.06
trembling	.65	.06	.01
hoarse	.64	-.23	-.14
Nijmegen accent	.48	-.00	.27
precise	.44	.04	.35
loud	.43	.35	-.02
nasal	.42	.32	.14
not varied*	.37	.19	.33
pauses	-.15	.79	.02
fast	.06	.68	-.05
talks a lot	.25	.50	-.14
fluent*	.42	.45	.22
sharp	.06	-.19	.79
high	-.26	-.27	.76
flat	.27	.34	.69
not expressive*	.23	.46	.51

*: scales excluded from further analysis

8.3 EFFECTS OF CONVERSATION TYPE, GROUP AND STATUS ON RATING FACTORS

For every subject a mean score was computed for the nine factors emerging from the factor analysis: the quotient of the sum of the scales loading on a factor and the number of scales loading onto that factor. These scores formed the input for an SPSS MANOVA in a split-plot 2 (condition) x 3 (group) design with one within-block factor: status. The results are presented below, separately for the three questionnaires. In order to provide a general overview of cell means, Table 8.4 contains the mean scores for high and low status subjects in two conversation types.

Perception of the interlocutor

Significant main effects regarding the perception of the interlocutor did not emerge for conversation type or group, and no significant interaction effects were obtained involving these factors.

Main effects of the independent variable status of the participants were obtained for two rating factors. High status subjects were rated higher on the factor 'competence' ($F = 9.59$, $p = .005$) and 'dominance' ($F = 6.67$, $p = .017$). There were no interaction effects involving status.

Table 8.4 Mean scores on 9 factors for high and low status subjects in co-operative and competitive conversations

	co-operative		competitive	
status:	high (n=15)	low (n=15)	high (n=15)	low (n=15)
rating factor				
competence	4.69	5.47	4.33	5.55
social attract.	5.93	6.24	5.73	5.60
dominance	3.05	3.75	3.36	4.13
game performance	4.00	5.09	3.53	4.53
co-operativeness	6.03	6.37	5.57	5.27
stress	2.27	1.83	2.37	2.30
artic./accent	5.31	5.42	5.27	5.61
prosody	3.78	4.38	3.78	3.89
voice quality	5.13	4.62	4.78	5.16

Perception of the game and situation

Significant main effects for both condition and status were obtained from the ratings of the factor 'game performance'. Ratings were significantly higher in the co-operative conversations ($F = 4.88$, $p = .037$), and high status subjects were perceived to perform better ($F = 9.31$, $p = .005$). There were no significant main or interaction effects involving group on the game performance factor.

A significant main effect of conversation type occurred for the factor 'co-operativeness' ($F = 9.75$, $p = .005$). Co-operativeness ratings were higher in the co-operative conversations than in the competitive conversations. On this factor there were also two-way interaction effects for conversation type x group ($F = 3.83$, $p = .036$), and group x status ($F = 4.73$, $p = .019$). There was also a significant three-way interaction: conversation type x group x status ($F = 4.14$, $p = .029$).

There were no main effects of group, conversation type or status on the factor 'stress'. However, one interesting significant group x status ($F = 7.79$, $p = .002$) effect was obtained. The low status subjects in group three (in which status assignment and accent are in conflict) reported that they had felt more stress than the low status subjects in the other two groups.

Perception of the interlocutor's speech

No significant main effects or significant interaction effects were obtained for the 'prosody' or the 'voice quality' factor. For the factor 'articulation/accent' only a significant group x conversation type ($F = 3.42$, $P = .050$) interaction was obtained.

8.4 ACCOMMODATION AND PERCEIVED SPEECH CHARACTERISTICS

The general conclusion regarding the perception of the interlocutor's speech is that the subjects in the experiment do not have stereotypes that are related to expert status (see also section 8.5). Therefore, one can ask whether or not there is a relation between the subjects' speech characteristics as perceived by the interlocutor on the one hand, and his objective speech characteristics on the other. In order to answer this question, correlations were computed between speech variables and rating factors.

In order to reduce the number of speech variables, the index scores for the segmental variables were submitted to a principal component analysis. The analysis was repeated for each of the three speech samples. A two factor solution is presented in Table 8.5. Both factors have an eigenvalue > 1. The percentage explained variance is 56.7, 50.6, and 52.2 respectively.

Table 8.5 Rotated factor matrix segmental transcription for three speech samples

t0	factor 1	factor 2
(v)	.78	.23
(ch)	.77	-.26
(z)	.68	.32
(ui)	.40	.76
(ei)	.12	.67
(g)	-.42	.61
(aa)	-.03	.58
t1	**factor 1**	**factor 2**
(v)	.86	-.01
(ch)	.74	.27
(z)	.73	-.22
(ui)	.13	.80
(ei)	.47	.59
(g)	-.19	.49
(aa)	-.00	.31
t2	**factor 1**	**factor 2**
(ch)	.87	-.05
(v)	.84	.22
(z)	.67	.22
(ei)	.19	.72
(ui)	.28	.66
(g)	-.25	.63
(aa)	.13	.36

As this table demonstrates, the fricatives (v), (z), and (ch) load on one factor according to their common phonetic dimension (voiced-unvoiced). This factor will be referred to as the 'nonstandard' factor. The fricative (g), the diphthongs, and the vowel (aa) load on a second factor, the 'dialect' factor, which has no common underlying phonetic dimension. This two factor solution is similar to the solution for Nijmegen speech material in van Hout (1989), and the factors are denoted in a similar way.

For every subject a mean score was computed for both the nonstandard and the dialect factor. This score equals the quotient of the sum of scales and the number of scales which load onto a factor. Correlations were computed between these factor scores and the scores on the prosodic and paralinguistic variables on the one hand, and the rating factors on the other. Correlations were computed for the speech samples at t0, t1 and t2. The results for the high status subjects at t2 are presented

in Table 8.6, and the results for the low status subjects in Table 8.7. These tables demonstrate that there is no correlation between the perceived speech characteristics of the interlocutor and a subject's speech at t2. This holds for the other two measurement points as well.

Table 8.6 Correlations between perceived speech characteristics of the interlocutor and objective speech measures of high status subjects at t2

	rating factor		
speech variable	artic/acc	prosody	voice qual.
dialect	.10	-.15	-.26
nonstandard	.17	-.06	-.36
pitch	.02	-.02	-.25
pitch variation	.01	-.22	-.16
amplitude variation	.02	-.05	-.14
articulation rate	.03	-.25	-.14
pitch perturbation	-.06	-.33	-.17

Table 8.7 Correlations between perceived speech characteristics of the interlocutor and objective speech measures of low status subjects at t2

	rating factor		
speech variable	artic/acc	prosody	voice qual.
dialect	.00	-.19	.05
nonstandard	.02	-.06	-.24
pitch	.10	.21	-.27
pitch variation	-.01	-.01	-.10
amplitude variation	-.03	-.17	-.02
articulation rate	-.12	-.08	.32
pitch perturbation	-.16	-.06	-.12

One might suggest that this result could be due to the unreliability of the perceptual ratings of the interlocutor's speech. This, however, proved not to be the case. Correlations were computed between the ratings of the interlocutor's speech, and the objective speech scores for this person. The results for high and low status subjects are presented in Table 8.8 and Table 8.9.

Table 8.8 Correlations between speech characteristics as perceived by the interlocutor and objective speech measures for high status subjects at t2

	rating factor		
speech variable	artic/acc	prosody	voice qual.
dialect	.14	-.06	.23
nonstandard	.07	.08	.02
pitch	.47**	.33	.19
pitch variation	.38*	.32	-.01
amplitude variation	.12	.00	.25
articulation rate	.09	.21	.10
pitch perturbation	.36*	.43*	-.08

** p < .01; * p < .05

Table 8.9 Correlations between speech characteristics as perceived by the interlocutor and objective speech measures for low status subjects at t2

	rating factor		
speech variable	artic/acc	prosody	voice qual.
dialect	.45*	.12	.16
nonstandard	.39*	-.12	.44*
pitch	.09	.27	.06
pitch variation	.24	-.14	.29
amplitude variation	-.08	.02	.12
articulation rate	.13	.51**	.08
pitch perturbation	.19	-.07	.36*

** p < .01; * p < .05

As Tables 8.8 and 8.9 demonstrate, the significant correlations emerged for both high and low status subjects, but none of these is shared by two groups. For the low status subjects, high correlations were obtained between ratings on the articulation/accent factor and the dialect and nonstandard speech factor, between ratings on the prosody factor and articulation rate, and between the voice quality factor and pitch perturbation. The pattern for the high status subjects is different, and the results are not as straightforward. High correlations between the articulation/accent rating factor and the two accent factors are not obtained, and there is no correlation between the prosody factor and articulation rate. The speech variables pitch, pitch variation and pitch perturbation correlate rather highly with both the articulation/accent and the prosody factor.

Boves (1984) has demonstrated that correlations between lay ratings and objective speech characteristics in general are rather low. However, it appears that both high status and low status subjects in this study have perceived (at least some of) their interlocutor's speech characteristics more or less accurately, so the perceived speech characteristics have at least some objective value. This suggest that a subject's perception of the speech of his interlocutor is not related to his own speech production. This observation does not support the model of the accommodation process in Giles & Powesland (1975: 158) (see section 2.1).

8.5 DISCUSSION AND CONCLUSIONS

Two general hypotheses were tested in this chapter. The first of these addressed the stereotypes of high and low status subjects regarding their interlocutor's speech. In order to investigate this hypothesis, an analysis of variance was computed. No main effects of status were found on the perception of the interlocutor's speech. Therefore, hypothesis 1 is rejected. Subjects in the experiment having a high or a low expert status do not hold different stereotypes with respect to their interlocutor's speech characteristics.

However, the status of the subjects is reflected in factors that are directly related to the experimental task: in the ratings of the interlocutor's competence and dominance, and his game performance. In addition, there are interaction effects involving status on task-related ratings of co-operativeness and game performance. These results support an expectancy confirmation interpretation of the interpersonal perception in the experiment.

No effects of conversation type or status were obtained for the acceptance of the situation as fair and just. In combination with the mean scores on this factor, this implies that the subjects on average felt at ease in both conversation types and status roles. These findings support the conclusion that the subjects in the experiment did not feel that they were involved in a strange or unfamiliar communicative situation.

Despite the fact that there are no overall differences in the perceived speech characteristics of high and low status subjects, it might still be the case that a strong connection exists between perceived speech characteristics of the interlocutor and the speech of the subjects at the end of a conversation. There is evidence that the ratings of the interlocutor's speech corresponds fairly well to the more objective speech measures. However, no correlations were found between a subject's speech at any of the three speech samples, and his perception of the interlocutor's speech. Thus, it can be argued that the subjects in this experiment have not accommodated their speech to the reported perception of their interlocutor's speech.

This means that it is highly improbable that the subjects have accommodated their speech to the stereotypes they have regarding the speech of high status or low status interlocutors. The implication of this conclusion for the accommodation model probably is that conditions must be specified which indicate under which circumstances people adapt to their stereotypes. This might perhaps only be the case in those communicative situations where differences between communicators are very obvious. Examples might be: intercultural encounters, intergenerational contexts, and talk to babies, toddlers, and children.

9 GENERAL DISCUSSION AND CONCLUSIONS

9.0 INTRODUCTION

The central aim of this study was to test hypotheses that were derived from accommodation theory. This theory deals with both intergroup and interpersonal communication and explains research findings in both areas of research. The focus in this study was exclusively on interpersonal communication. The hypotheses were tested with respect to four speech levels: the lexical level, the discourse level, the segmental level, the prosodic and paralinguistic level, and these were dealt with in separate chapters. In this chapter results are summed up, and their implications for accommodation theory are discussed.

Central independent variables in the experimental design were the type of conversation, the accent of the participants and their status. Many effects of conversation type occurred, and Nijmegen-accented and standard-accented subjects were found to differ on relevant speech dimensions. Throughout this study, however, effects of status were very limited. The experimental manipulation of these three independent variables and the inevitable limitations related to experimental design, are discussed first (section 9.1). In the next section, 9.2, the results regarding accommodation processes are summarized. Some attention is devoted to the concept of accommodation which was tested more or less implicitly in the research hypotheses. Section 9.3 contains some suggestions for future research.

9.1 LIMITATIONS OF THE EXPERIMENTAL DESIGN

The main focus in this section is not on such methodological issues as for example the relative merits of experiments compared to real life observations. The discussion is restricted to the general evaluation of the successes and failures of the experimental set-up used in this study. The experimental design puts severe limits on the scope and implications of the general conclusions for accommodation theory. Throughout the previous chapters aspects of this experimental design were discussed. Here, this discussion is summarized, and where necessary, extended.

Limitations due to manipulation of conversation type and task features

As was discussed in chapter 3, the general aim of the experiments was to model a natural communicative situation under restricted laboratory conditions. A question that is related to issues of the general value of the results is whether there are

equivalent 'real' situations that correspond to the experimentally modelled communicative situation. If such equivalents do not exist, the results have no general value.

It was argued in section 3.5 that equivalents of the experimental situation in everyday life are easy to find. The manipulation of conversation type is rooted in the experimental gaming tradition, in which researchers attempt to model realistic situations in laboratory experiments. Good approximations of the competitive conversations would be situations where important decisions are negotiated by parties that value different options. Both parties will try to maximize their own profit, even if this limits the potential profit of the other party. The co-operative conversations can be equated with many everyday conversations in which the participants do not have conflicting communicative goals. Millions of such conversations occur every day in every town or city between previously unacquainted people who incidentally meet each other in shops, bus stations or bars.

The type of conversation the subjects were engaged in was found to be of profound influence on their speech behaviour. First of all the two types of conversations differ in their general characteristics at the discourse level. More interruptions occurred, more back channel cues, less long pauses between turns and within turns, and more topic changes occurred in co-operative conversations. Other differences emerged from the analysis of long-term speech characteristics. Co-operative conversations sounded more 'lively' compared to competitive conversations because there was more variation in pitch and amplitude.

A clear relationship is shown to exist between communicative goals and accommodation processes. In both conversation types the subjects hold well-defined communicative goals, and these goals differ for the two types of conversation. This results in general differences at the speech level because the subjects apply different strategies to reach their communicative goals. Reciprocity occurred (at least at the lexical and the discourse level) in co-operative conversations but not in competitive conversations. To converge one's speech to the speech of the interlocutor was part of a co-operative strategy.

There is one important difference between the experimental situation and the real-life situations the experiments are modelled on. In the experiment all visual communication was suppressed. Subjects were placed in separate rooms and did not see each other before, during or after the experiment. A lot of non-verbal communication takes place very effectively via the visual channel (Forgas 1985; Ellis and Beattie 1986). This puts serious limits on the validity and the value of the conclusions from this research for normal conversations. For instance "liking" is communicated easily by gaze or posture, and status is often reflected in clothing or general appearance.

The effect of this reduction in the visual channel may take two opposite directions. First it may be that the absence of visual cues is compensated for by an increase in verbally transmitted cues regarding, for instance, mutual liking. It may, on the contrary, also be the case that the occurrence of this type of cue in the auditory-verbal channel is reduced as a result of the fact that they are not triggered

over the visual channel. In the first option the speech signal would be 'richer' than it would be in the normal case, in the second option it would be 'poorer'. Additional research would be needed to solve this issue. For the time being it is important to realize that the results can be generalized only to situations where communication is limited to the verbal-auditory channel.

In spite of these obvious limitations it can be concluded that the experiment has succeeded in creating antecedents for two distinct types of discourse. The subjects in the experiments did not perceive the communicative situation to be strange or unfamiliar, although central features of this situation were kept under firm control. The experimental set-up in general has worked out successfully, and could provide a powerful tool for research into accommodation in other cultural settings, and with other groups of subjects (male-female, high SES-low SES, intergenerational etc.) as well.

Limitations due to manipulation of status

Status was found to have rather strong effects on the ratings of the competence, dominance and the performance of the interlocutor in the experiment. Effects of status on speech accommodation were not obtained. It must be reminded, however, status was operationalized as expert status, and so the conclusions regarding status and accommodation processes cannot be generalized to dyads where status differences exist that are directly related to the status and the position in society (SES) of the persons engaged in a conversation. In section 5.3 it was noted that status as it was operationalized here is not related to social power or to social control over the interlocutor. Therefore, the behaviour of the participants in a conversation has no repercussions whatsoever after the experiment is terminated. This may be different in interactions in which the 'real' status of two interlocutors is salient and is derived from other power sources (in job application interviews or in intergenerational contexts for example).

This might suggest that an alternative operationalization of status should have been used. For the purposes of this experiment, however, it is doubtful whether a better manipulation would have been feasible. Status and accent of the participants were crossed in the experimental design, the participants' age was matched and both participants in a dyad were of the same sex. Under these restrictions it proved very difficult to find enough Nijmegen-accented subjects. The experiment would probably have been impossible to carry out if the 'real' SES of the subjects had been taken as their status in the experiment. So although the manipulation used here lacks some features that are inseparable from status in real life, it was the best alternative for practical reasons.

Limitations due to manipulation of accent

The accent of the subjects in the experiment was one of their natural background variables. As indicated in chapter 3 all subjects lived in Nijmegen or its direct vicinity. The participants' accent was rated by two trained linguists, and based on this rating the participants were categorized as standard speakers or Nijmegen-accented speakers. Differences between the two sub-groups emerged on the lexically based variable in chapter 4, and on several segmental variables analyzed in chapter 6. However, the differences are not impressive. The range of the differences between the two sub-groups is rather small, and there is considerable overlap. Prior to the conversation, most standard-accented subjects used at least a few Nijmegen-accented variants, and none of the Nijmegen-accented subjects exclusively used Nijmegen-accented variants. As was also noted in chapter 3, subjects were included in the experiment who were not clearly categorized as Nijmegen-accented speakers.

This has profound effects on the analysis of accommodation processes at the segmental level. If differences in pronunciation between the interlocutors in a conversation are small, then it is not easy to demonstrate that subtle shifts do indeed take place. This is in part due to the general problems in making perfectly valid segmental transcriptions. Processes of accommodation are of course far easier to perceive (for an interlocutor) and to demonstrate (for a researcher) in situations where the differences between the interlocutors are great, (e.g. in intercultural settings). In short, the results regarding accommodation at the segmental level in this study can be generalized only to conversations in which few differences exist between the participants' phonological accents.

9.2 GENERAL CONCLUSIONS

The reciprocity question

Four general hypotheses were formulated that concern accommodation processes in co-operative and competitive conversations. Two of these hypotheses state that convergence will occur in co-operative conversations, and will not occur in competitive conversations. An assumption underlying these hypotheses was that speech shifts will emerge as overall shifts in the measures for several speech variables, resulting in mutual reciprocity. These hypotheses were confirmed for lexical variables and for discourse features. No differences, on the other hand, were found between the two conversation types with respect to accommodation processes in segmental, prosodic or paralinguistic variables.

As was predicted, reciprocity occurs exclusively in the co-operative conversations, and takes both reciprocal and compensatory directions. In the competitive

conversations a compensatory relation was found for only one variable included in this study (pitch perturbation). Coupland et al. (1988) noted that the discourse management component is the most important category through which interpersonal convergence is implemented. The results of this study can be taken as experimental evidence for this claim. In general it can be concluded that the mutual interdependence of the subjects is reflected in their speech behaviour more clearly in the co-operative conversations than in the competitive conversations.

Evidence for accommodation in lexical variables is rather strong as well. In chapter 4 convergence at the lexical level was linked to grounding processes in co-operative conversations (Schober and Clark 1989). It was argued that these grounding processes, which are generally considered to be cognitive in nature, presuppose a co-operative attitude. Thus, a relationship is established between discourse processes and lexical accommodation.

As was noted in section 9.1 the conclusions regarding accommodation processes at the segmental speech level are limited as a result of the selection of subjects. Differences between the Nijmegen-accented and the standard-accented subjects are rather small. An interesting observation was that subjects who where found to use velar variants of (ch) prior to the conversation all used a few uvular variants if their conversational partner habitually used these uvular variants. Throughout the whole of the Netherlands both velar and uvular variants are heavily stigmatized.

This observation gave rise to the assumption that convergence can be implemented not only as a long-term strategy, but also as a short-term strategy. A limited number of 'accommodated' variants may have a high communicative value if the right variants are adapted, and presented with a certain emphasis. Paradoxically, this interpretation of accommodation at the segmental level as short-term and intermittant in nature, could arise only because of the fact that the accent of the subjects did not differ much. This interpretation fits in with the observation that long-term accommodation in prosodic and paralinguistic variables did not occur. For these variables it was suggested in chapter 7 that accommodation occurs perhaps most clearly at turn transition points, and as a locally operative short-term process.

This alternative interpretation of accommodation phenomena would predict that reciprocity decreases as utterances become longer, or speech samples are larger. This assumption can be tested in a relatively simple experiment, and encouraging evidence is already available. Black (1949), Webb (1972), and Leiser et al. (1987) found strong evidence for convergence in prosodic features in a question-response context. This means that relatively short fixed stimuli were compared to responses of the same length which follow immediately after the presentation of the stimulus. In addition, Kenny and La Voie (1984) compared reciprocity scores in 19 different studies into dyadic interaction, and found that the highest scores were obtained in the shortest encounters. These considerations point to the importance of investigating linguistic accommodation processes in more detail.

Reciprocity increased in the co-operative conversations as time proceeds only for a limited number of variables: the lexically based variable, the segmental variable (aa), and the prosodic variable "articulation rate". For all other variables for which a significant intraclass correlation was obtained reciprocity decreased in the course of the conversations. This is an interesting result that can be interpreted in at least three distinct ways. Firstly, one could argue that 'real' accommodation only occurs with respect to these three variables, and not with respect to any of the others because only these variables follow the predicted patterns. More interestingly, one could argue that accommodation processes occur most prominently at the beginning of a conversation. Probably the communication of social messages is especially important in the initial stages of a conversation. Thirdly, one could suggest that accommodation processes do not develop in parallel for all speech variables. This interpretation arguably is the most interesting. It points to the more dynamic view of accommodation processes we advocated in detail before (Boves et al. 1990).

In short, accommodation can be interpreted as a dynamic process that will interfere with other communicative needs, as many co-occurrent messages are transmitted through the vocal channel in several layers of speech. The argument is that a speaker has more communicative goals than just accommodating his speech to his interlocutor, and other attitudinal or emotional information may be transmitted simultaneously over the vocal-auditory channel as well. A speaker may sometimes be urged to mask his accommodative tendencies in order to satisfy other communicative goals by means of the same vocal parameters.

In sum, it has been demonstrated that accommodation processes do not occur in all types of discourse. Accommodation theory, therefore, should specify in which types of discourse they do or do not occur. It was also demonstrated that accommodation processes occur with respect to some variables, but not with respect to others. Again, a predictive theory should specify which features are accommodated under which circumstances. In addition, a predictive theory should specify the time domains in which accommodation processes are operative. Time domains may be different for different variables.

The status difference question

Situations where expert power is salient occur frequently in all sorts of professional encounters. Status was found to be of little influence on accommodation processes. It was not the case that the status of the subjects in the experiments was related to the extent to which they accommodate their speech. This conclusion, it must be emphasized, can be generalized only to situations in which status differences are due to differences in expert power. Apparently the concept of status is not unproblematic in itself. A predictive theory should specify which aspects of status will influence accommodation processes, and which aspects will not.

In section 2.2 the relation holding between scores on the F-scale and reactions to perceived status was discussed. In several studies it was found that individuals respond differently to perceived status. Based on these findings it was argued that individual differences in accommodation processes may arise as well. Some persons might for example try to emphasize their status, whereas others may tend to reduce perceived differences (Hilton and Darley 1985).

In the accommodation framework reactions to perceived status are essentially unidimensional as no account is taken of individual differences in response to status. However, such differences may explain why status-related main effects were not obtained in this study. In addition, it may well be the case that there are intercultural differences in the perception of, and the response to status differences. In comparison to, for instance, the English subjects in Thakerar et al. (1982), it may be that the Dutch adolescents in this study care less about, or are less responsive to status differences.

Similar arguments hold with respect to the claim in accommodation theory that people adapt their speech to the stereotypes they hold about the speech of the interlocutor. This was found not to be the case in this study. However, there is no doubt that people will immediately adapt their speech to very young children or to persons that are categorised as foreigners, professors, or homeless from their general appearance. In interpersonal conversations these stereotypes may be less important. At least this was the case for the population of subjects in this study which differed on a dimension of expert status. If anything, these subjects accommodated to the objective speech characteristics of their interlocutor.

9.3 SUGGESTIONS FOR FUTURE RESEARCH

In section 2.2 many questions were raised regarding accommodation theory, and only a few of these were investigated in this study. The important question as to whether or not convergence is an automatic process, for instance, has not been directly addressed in this experiment. As noted in that section, accommodation theory specifically deals with aspects of the 'macro-planning' of utterances. Following Cappella (1985: 422) one might argue that accommodation theory "works well in situations in which individuals are making relatively deliberate choices but not so well in situations in which individuals are making relatively automatic reactions". Additional research may explicitly test this aspect of the theory.

For the time being it must be concluded that the value of the accommodation model is restricted by the fact that central concepts and processes in the model are formulated in very general terms. The danger in this situation is that every researcher will test his own specific interpretation of these concepts without defining them explicitly. Now that the theory seems to have acquired an undisputed status in sociolinguistics, the time has come for research that aims at falsifying hypotheses derived from a strong version of the theory in which concepts are strictly defined.

The current study demonstrates only the rough outlines of the directions this research may take. The use of the intraclass correlation to define and to analyse processes of convergence and divergence in the general design specified in Kenny (1990), certainly is a step in the right direction. In spite of the value of this approach, there are certain problems that the definition of divergence brings about. The point is that divergence can only be assessed as non-accommodation. The intraclass correlation depends on two sources of variance: between dyads and within dyads. So if the between-dyads variance is very small the intraclass correlation will be low even if the participants in a dyad desperately try to accommodate their speech. A type II error may be the result: the null hypothesis is accepted, while in fact accommodation does occur.

In addition, the position taken in the current study that a negative intraclass correlation signifies a co-operative intention is open to dispute. An alternative interpretation of the results that are obtained is that the subjects in the co-operative conversations converge on some variables, and diverge on others. However, this does not influence the general conclusions. The results still demonstrate that accommodation occurs in co-operative conversations, and that the subjects in competitive conversations do not accommodate their speech.

Interesting research questions arise about segmental and prosodic speech variables from a new interpretation of accommodation processes as short-term and locally operative. It would be very interesting, for instance to study accommodation processes in prosodic variables at turn transition points. In addition, one would like to get more insight into the processes as they occur in individual conversations. Relatively new analytical frameworks point to the relevance of time series analysis in dyadic interaction (Iacobucci and Wasserman 1988; Griffin and Gardner 1989). These techniques do not bring about similar problems with respect to the definitions of convergence and divergence as the intraclass correlation approach does. In addition, they offer the opportunity to do analysis on the level of individual conversations.

Time series analysis are very useful in tracing patterns of convergence and divergence within individual conversations. If applied to the speech material in this study, they might demonstrate that in both co-operative and competitive conversations some dyads will tend to converge, while others do not, or that in some conversations a reciprocal relation is established for a specific speech variable, whereas in another dyad a compensatory relation occurs. In short: time series analysis might reveal many complexities that remain hidden in the approach taken here.

From a sociolinguistic point of view accommodation theory suggests lots of interesting research questions and directions, some of which were formulated in chapter 2. Most of these address specific issues of how precisely an intention to accommodate is implemented in speech. At the same time novel techniques make it feasible to investigate these questions in considerable detail. Research into the social psychology of language has to take up the challenge to investigate these issues, and to pay more attention to speech production.

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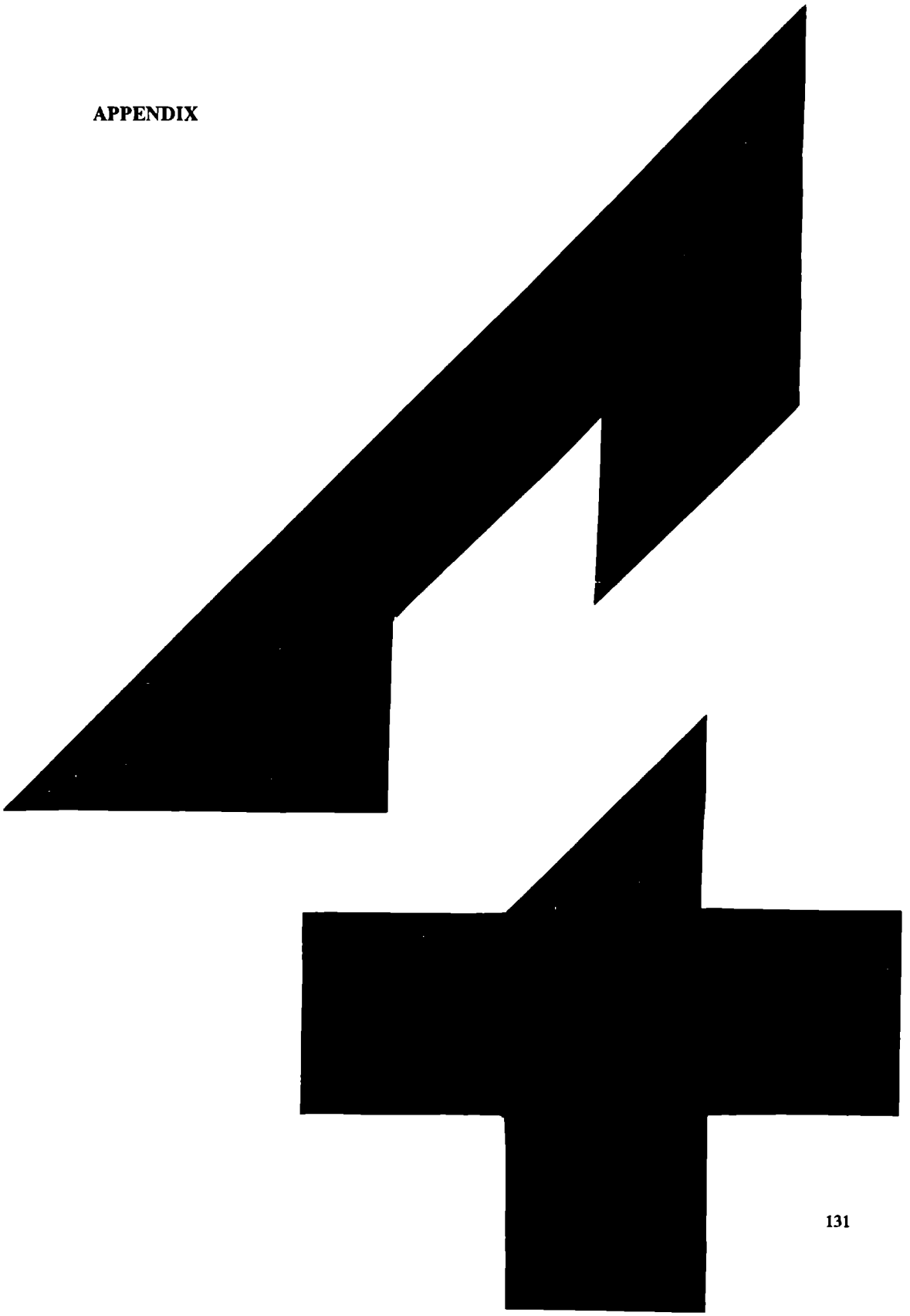
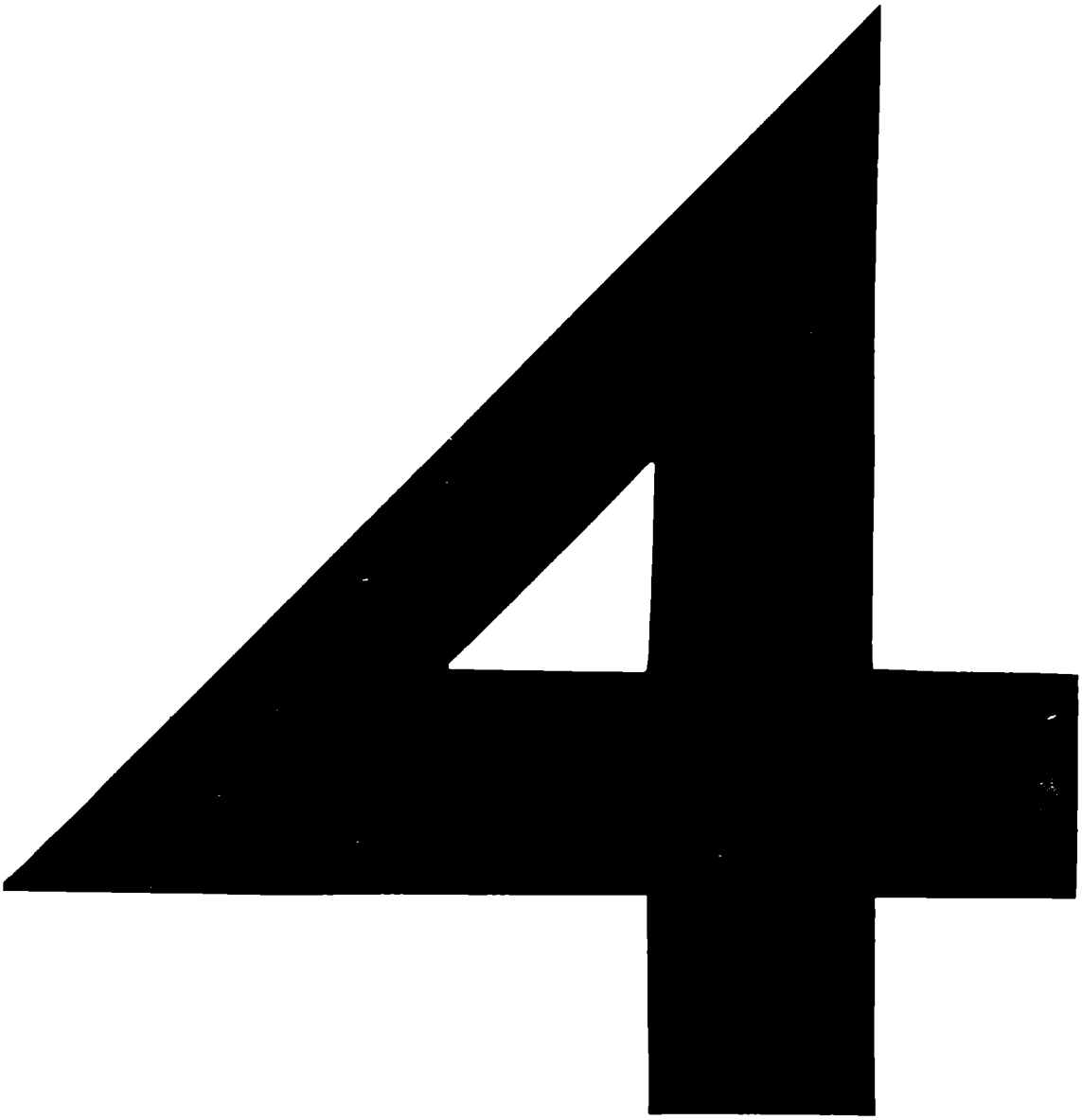
APPENDIX





SAMENVATTING

In de geïndustrialiseerde landen zijn de bewoners de laatste decennia steeds mobieler geworden. Dit heeft niet alleen gevolgen voor ons milieu, maar ook voor de structuur van onze sociale relaties en daarmee voor ons taalgebruik. We krijgen steeds vaker te maken met mensen die we niet kennen, en met deze mensen voeren we korte gesprekken in winkels, kantoren, kroegen en ziekenhuizen. Het wordt steeds belangrijker de vaardigheid te bezitten om in zulke korte gesprekken de juiste indruk op de gesprekspartner te maken.

In dit soort van initiële contacten speelt de communicatie van sociale boodschappen een voorname rol. Deze sociale boodschappen worden voor een deel via het visuele kanaal overgebracht, en ze krijgen voor een ander deel gestalte in de manier waarop we spreken. Korte gesprekken tussen twee onbekenden vormen het globale onderwerp van dit proefschrift. Centraal staan de subtiele veranderingen in spreekstijl die kunnen worden gebruikt voor het overdragen van sociale booschappen.

De onderzoeksvragen zijn geformuleerd in het kader van de taalaccommodatie-theorie die ontwikkeld is door de sociaal-psycholoog Giles. De theorie legt een verbinding tussen sociaal-psychologische en sociolinguïstische vraagstellingen. Ze gaat uit van de gedachte dat we in een interactie onze spreekstijl aanpassen om daarmee -bewust of onbewust- doelen te bereiken zoals het winnen van de sympathie van de gesprekspartner, het bereiken van communicatieve efficiency, of het creëren van een gewaardeerde sociale identiteit.

De theorie onderscheidt grofweg twee belangrijke strategieën die dit soort van doelen ondersteunen: convergentie en divergentie. Convergentie is een strategie waarbij de gesprekspartners proberen hun spraak zo veel mogelijk te laten lijken op de spraak van de ander. Divergentie is een strategie waarbij gesprekspartners de verschillen in hun spraak juist accentueren. In het eerste hoofdstuk worden voorbeelden gegeven van onderzoek waarin het bestaan van deze strategieën is aangetoond. Deze voorbeelden hebben betrekking op variabelen zoals bijvoorbeeld spreektempo, luidheid, intonatie en accent.

De taalaccommodatietheorie wordt in het tweede hoofdstuk in het kort samengevat. In dat hoofdstuk worden ook enkele kritische kanttekeningen gemaakt ten aanzien van deze theorie. Deze komen er met name op neer dat centrale begrippen zoals convergentie en divergentie in de theorie erg summier (of beter gezegd: intuïtief) zijn gedefinieerd. Het is niet altijd even duidelijk wat de theorie wel of niet voorspelt.

De meeste evidentie voor het optreden van convergentie is verzameld in experimenten waarin de deelnemers uit zijn op coöperatie. De vraag is nu of convergentie zich ook voor doet als deelnemers aan een gesprek niet streven naar coöperatie. Om deze vraag te onderzoeken worden twee typen van gesprekken met elkaar vergeleken: coöperatieve en competitieve. Op basis van de theorie kan

worden voorspeld dat gesprekspartners in coöperatieve gesprekken zullen convergeren, en dat deelnemers aan competitieve gesprekken juist zullen divergeren. Een tweede vraag is daarbij hoe de accommodatieprocessen zich in de loop van een gesprek voltrekken. De voorspelling is dat convergentie steeds sterker zal worden naarmate het gesprek vordert in de tijd, en dat de verschillen tussen sprekers in de tijd toenemen als ze van elkaar willen divergeren.

Een ander belangrijk aspect van de accommodatietheorie heeft betrekking op de status van de gesprekspartners. De theorie beweert dat deelnemers met een lage status zich sterker zullen aanpassen dan deelnemers met een hoge status. Daarbij spelen stereotiepe opvattingen over de spraak van de gesprekspartner een wezenlijke rol. Het zou niet zozeer gaan om de feitelijke, objectieve spraakkenmerken, maar om de stereotiepe opvattingen daarover die een spreker heeft.

In dit proefschrift worden in een experiment voorspellingen getoetst die zijn ontleend aan de taalaccommodatie-theorie enerzijds, en aan de evaluatie van de theorie in hoofdstuk twee anderzijds. Processen van taalaccommodatie worden onderzocht ten aanzien van lexicale, pragmalinguïstische, segmentele en suprasegmentele aspecten van spraak. In het derde hoofdstuk wordt de opzet van dat experiment beschreven. Eerst worden de resultaten van een proefexperiment besproken, waarin het er vooral om ging een manipulatie van de onafhankelijk variabelen 'gesprekstype' en 'status' uit te testen. Het bleek goed mogelijk te zijn de status van de deelnemers aan het gesprek te manipuleren met behulp van een instructie die betrekking heeft op hun 'expert status'. De manipulatie van het type gesprek als coöperatief of competitief kwam in het proefexperiment veel minder goed uit de verf. Een nieuwe opzet kwam tot stand op basis van een literatuurstudie naar de begrippen coöperatie en competitie in de sociaal psychologische literatuur. Een nieuwe experimentele taak werd ontwikkeld: het "Bankroverspel". De doelen van de deelnemers aan dit spel, en daarmee ook het type gesprek, worden gemanipuleerd met behulp van opdrachten, instructies en beloningen.

In hoofdstuk drie komt ook de definitie van convergentie en divergentie aan de orde. Het uitgangspunt is dat het optreden van accommodatie ertoe leidt dat er een wederzijdse afhankelijkheid ontstaat tussen het gedrag van de beide personen in een dyade. Statistisch kan die samenhang worden aangetoond door middel van een intraklasse-correlatie. Als de intraklasse-correlatie niet significant is, dan is het gedrag van de beide deelnemers onafhankelijk: er is dan geen accommodatie.

In het uiteindelijke experiment werden 15 coöperatieve en 15 competitieve gesprekken opgenomen op band, elk met een duur van 20 minuten. De deelnemers aan het experiment waren afkomstig uit Nijmegen, van het mannelijk geslacht, en tussen de 16 en 20 jaar. De twee deelnemers aan een gesprek kenden elkaar niet. Alle communicatie via het visuele kanaal werd onmogelijk gemaakt: de deelnemers kregen elkaar voor, tijdens en zelfs na het experiment niet te zien.

De helft van alle deelnemers had een hoge status, en de helft een lage status. De toekenning van status gebeurde op basis van een vooronderzoek waarbij de

deelnemers een toets aflegden. In dat vooronderzoek werd ook bepaald of de deelnemers spraken met een Nijmeegs accent of met een standaard Nederlands accent. Om te onderzoeken of iemands feitelijke accent van belang is bij het accommodatieproces, of dat het alleen gaat om stereotiepe meningen werd in het onderzoeksdesign de status van de deelnemers gekruist met hun accent.

In het vierde hoofdstuk komt accommodatie op lexicaal niveau aan de orde. De resultaten laten op de eerste plaats zien dat de deelnemers in de coöperatieve gesprekken inderdaad convergeren in het gebruik van bepaalde woorden, en dat de mate van convergentie toeneemt in de loop van het gesprek. Convergentie komt niet voor in de competitieve gesprekken. De voorspelling dat de deelnemers met een lage status meer convergeren dan deelnemers met een hoge status werd niet bevestigd.

Het vijfde hoofdstuk behandelt accommodatieprocessen op discourse niveau. In de meest recente publicaties over de taalaccommodatietheorie wordt een centrale plaats ingeruimd voor de discourse-component, maar er zijn nog niet veel experimentele gegevens die het voorkomen van accommodatie op dit niveau aantonen. De resultaten laten op de eerste plaats zien dat de coöperatieve en de competitieve gesprekken verschillen op vijf van de zeven discourse variablen die werden onderzocht. Dit geeft aan dat de manipulatie van het gesprekstype als geslaagd kan worden beschouwd.

De voorspellingen met betrekking tot accommodatieprocessen werden deels bevestigd en deels verworpen. Accommodatie werd aangetoond in coöperatieve gesprekken, maar niet in competitieve. Het ging daarbij om de variabelen interrupties, pauzes binnen beurten, en beurtlengte. Maar opnieuw bleek de status van de deelnemers niet van invloed op hun accommodatiegedrag.

In hoofdstuk zes staan accommodatie in segmentele variabelen centraal. Zeven variabelen werden onderzocht. Proefpersonen met een Nijmeegs accent bleken te verschillen van deelnmers met een standaard accent ten aanzien van vier van deze variabelen: (g), (ui), (ei) en (aa). Convergentie in coöperatieve gesprekken bleek alleen voor te komen ten aanzien van de variable (aa). Omdat voor geen van de andere variablen accommodatie werd aangetoond moet worden geconcludeerd dat de voorspellingen van de theorie niet worden bevestigd. Uit de transcripties bleek echter dat de proefpersonen ten aanzien van de variable (g) een enkele keer afwijken van hun 'eigen' uitspraak (een 'harde' of 'zachte' g). Deze aanpassing leidde welliswaar niet tot een significante intraklasse-correlatie, maar kan toch een sterk communicatief effect teweeg brengen: juist deze variabele is in het Nederlands taalgebied sterk gestigmatiseerd.

Hoofdstuk zeven behandelt accommodatie in prosodische en paralinguïstische variabelen. Ten aanzien van deze variabelen werden de voorspellingen van de accommodatietheorie niet bevestigd. Net als in het vorige hoofdstuk kan hier de vraag worden gesteld of accommodatie op dit niveau zich niet vooral manifesteert

op de korte termijn. Bij het beluisteren van de gesprekken lijkt het alsof de aanpassing tussen twee sprekers het sterkst is daar waar ze van beurt wisselen. De verwachting is dan dat accommodatie zich sterker zal manifesteren naarmate de opeenvolgende uitingen van twee sprekers korter zijn.

Het achtste hoofdstuk is gewijd aan de relatie tussen accommodatie en stereotypen. Na afloop van het gesprek hebben alle deelnemers een vragenlijst ingevuld. De vragen waren gericht op hun indruk van de gesprekspartner, van het experiment, en van de spraak van de gesprekspartner. De eerste twee categoriën geven informatie omtrent het slagen van het experiment. In beide gesprekstypen voelden de deelnemers zich goed op hun gemak. De coöperatieve gesprekken werden als meer coöperatief waargenomen dan de competitieve. Het gesprekstype en het accent van de deelnemers hadden geen invloed op de antwoorden op vragen omtrent de perceptie van de gesprekspartner. De status van de deelnemers had daarentegen wel invloed op de antwoorden. Deelnemers met een hoge status werden competenter en meer dominant gevonden.

De onafhankelijke variable 'accent' (Nijmeegs - standaard) van deelnemers kwam niet tot uitdrukking in de antwoorden op de vragen die daarop rechtstreeks betrekking hebben. Er was evenmin een effect van status op deze variabelen. Blijkbaar hebben de proefpersonen geen duidelijke stereotiepen omtrent de manier waarop mensen met een hoge 'expert status' spreken.

In daarop volgende analyses werd getracht de beoordeling van de spraak van de andere deelnemer in verband te brengen met de 'objectieve' meetresultaten. Zo'n verband blijkt te bestaan, al is de relatie niet overdreven sterk. Het lijkt er dan ook op dat de deelnemers de spraak van hun gesprekspartner redelijk accuraat hebben waargenomen. Het lijkt echter niet het geval te zijn dat de deelnemers hun eigen spraak aanpassen aan hun perceptie van de spraak van de andere deelnemer.

In het slothoofdstuk worden de conclusies van alle afzonderlijke hoofdstukken samengevoegd en van commentaar voorzien. Ook komen in dat hoofdstuk enkele beperkingen aan de orde ten aanzien van de generaliseerbaarheid van de resultaten. Van belang is dan op de eerste plaats het feit dat alle communicatie over het visuele kanaal is onderdrukt. Verder onbreekt in de gevolgde manipulatie van status het aspect van feitelijke macht over de andere deelnemer. De status in het experiment is maar een heel lichte afspiegeling van status in de werkelijkheid.

Het proefschrift eindigt met een aantal suggesties voor toekomstig onderzoek. In experimenteel onderzoek zouden meer aspecten van de theorie grondig getoetst moeten worden. Het zou verder ook interessant kunnen zijn zodanige analyses te doen dat individuele conversaties met elkaar vergeleken kunnen worden. Dergelijke analyses zijn mogelijk op basis van het materiaal dat in het kader van dit onderzoek is verzameld. Verder verdient het aanbeveling nader onderzoek te doen naar accommodatie in prosodische variabelen, waarbij de aandacht specifiek dient uit te gaan naar verschijnselen op de grenzen tussen beurten.

CURRICULUM VITAE

Tom Boves werd geboren op 11 april 1961 te Meerssen. Hij behaalde het diploma atheneum b aan het Jeanne d'Arc lyceum te Maastricht in 1979, en het kandidaatsexamen Nederlandse Taal- en Letterkunde aan de Katholieke Universiteit Nijmegen in 1983. Hij studeerde in 1987 af met als hoofdvak sociolinguïstiek en bijvakken Moderne Letterkunde, Methodologie en Statistiek, Fonetiek en Informatica. Tussen 1983 en 1987 was hij als student-assistent werkzaam bij de vakgroep Fonetiek, de Nijmeegse Centrale voor Dialect en Naamkunde, en het Max Planck Institut für Psycholinguistik. Van mei 1987 tot mei 1991 was hij uitvoerder van het NWO-project 'Fonetische accommodatie'.